INDEX TO VOLUME 39

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How To Use This Index

This volume index is similar in form to the cumulative indexes of this JOURNAL, covering, respectively, Volumes 1–10, 11–20, 21–30, and 31–35, and it is composed of three main divisions:

1. **Author Index** to Volume 39
2. **Inventor Index to Acoustical Patents,** Volume 39
3. **Analytic Subject Index** to Volume 39

The Subject Index to Volume 39 of *The Journal of the Acoustical Society of America* lists the titles of all items as they have appeared in the JOURNAL. They are grouped under the 16 major section headings as listed in the **Classification of Subjects,** which follows immediately after these paragraphs. Each of these sections is subdivided into a considerable amount of decimally numbered subjects. Each subject is further subdivided into 9 parts entitled, respectively,

1. **Papers**
2. **Letters to the Editor**
3. **Technical Notes and Research Briefs** (Started 1966)
4. **Abstracts**
5. **Subtitles**
6. **Patents**
7. **Book Reviews**
8. **News**
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Classification of Subjects • Effective 1 January 1965

This classification supersedes all previous ones; there have been major changes and additions.

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2.8 Reverberation-Measuring Instruments. (See also 2.7 and 5.15.)
2.9 Sound Transmission through Walls, Theory and Methods of Measurement of. (See also 2.10.)

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Burg, Kenneth E. (see Brock, Fred A.). **39**: 789—1966
Burns, James Ormston and Gordon Spencer Chandler. 3,196,729. Musical instruments. **39**: 227—1966
Burns, Kay N. (see Shanks, John L.). **39**: 800—1966
Busch, Siegfried, Rudolf Hatschek, and Franz Pischinger. 3,158,763. Piezoelectric gauge. **39**: 621—1966

C

Callendar, Howard A. (see Brown, Howard L.). **39**: 1015—1966
Campanella, Samuel J. 3,165,586. Microscope spectrum analyzer. **39**: 447—1966
Campbell, Ralph A., Theodore Ongaro, and Glen H. Thomas. 3,157,852. Voltage generating seismic vibratory pickup device. **39**: 797—1966
Carlin, Benson. 3,117,768. Ultrasonic transducers. **39**: 789—1966
Carlisle, Richard W. 3,204,585. Blast resistant structure. **39**: 219—1966
Casey, John L. (see Engle, Allen W.). **39**: 793—1966
Castanet, Alain and Michel Lavergne. 3,208,550. Vibrator controlling system. **39**: 808—1966
Catto, Kenneth A. 3,133,160. Combination bias oscillator, mixer and recording amplifier. **39**: 1008—1966
Cech, Karl. 3,125,645. Miniature sound tape recorder or the like. **39**: 785—1966
Chandler, Gordon Spencer (see Burns, James Ormston). **39**: 227—1966
Chapman, Dave. 3,140,564. Sound insulating apparatus having movable partition. **39**: 1209—1966
Chapman, John Earl. 3,202,760. Intercommunication system. **39**: 1210—1966
Charske, Charles J. (see Hubbard, Charles L.). **39**: 799—1966
Chass, Jacob. 3,168,830. Pressure transducer. **39**: 620—1966
Christensen, Alton O. (see Wittenborn, August F.). **39**: 811—1966
Christoffersen, Ove. 3,238,309. Hearing aid apparatuses. **39**: 1210—1966
Church, Franklin W. and Lawrence W. Raymond. 3,326,327. Sound level time integrator. **39**: 1210—1966
Clapper, Genung L. 3,183,303. System for voice answerback from data processor. **39**: 1015—1966
Claras, Carl W. and Theodore Wickstrom. 3,129,296. Stereo tape recorder system. **39**: 785—1966
Clark, John B. (see Stevens, Louis D.). **39**: 223—1966
Clay, Clarence S., Jr. (see Schimmel, Howard). **39**: 1018—1966
Clynch, Frank. 3,205,971. Suspension and isolation system for seismic shear wave transducers. **39**: 806—1966
—— Re. 25,401. System for anchoring and transporting a seismic vibrator. **39**: 793—1966
—— **and Delbert W. Fair.** 3,159,233. Seismic transducer construction. **39**: 798—1966
Cohen, Also L. 3,176,086. Transducer field structure assembly. **39**: 226—1966
Cole, Jimmy R. (see Doty, William E. N.). **39**: 807—1966
Conlin, Patrick J. 3,166,152. Muffler device. **39**: 443—1966
Connell, David V. (see Willmore, Patrick L.). **39**: 806—1966
Conrad, Frederick J. (see Wolf, Samuel). **39**: 447—1966
Cookerly, Jack C. and George R. Hall. 3,212,384. Guitar neck construction. **39**: 790—1966
—— **and George R. Hall.** 3,213,180. Tone generation system. **39**: 790—1966

Cordell, Ralph L. and Julian F. Evans. 3,126,976. Seismic velocity logging of low-velocity well formations. **39:** 794—1966

Cowan, John V. 3,192,420. Electro-mechanical transducers and the fabrication thereof. **39:** 438—1966

Cram, Milton E. and Donald D. Dodge. 3,115,770. Ultrasonic inspection method. **39:** 791—1966

Crews, Cary A. (see Scray, Peter J.). **39:** 436—1966

Crocker, Weyman S. (see Smoll, Allen E.). **39:** 624—1966

Croslin, Michael E. 3,233,041. Audio cardioscope. **39:** 1210—1966

Crowe, John and Kenneth Arthur Wallis. 3,168,935. Mufflers or silencers. **39:** 443—1966

Cuneo, William T. 3,180,449. Noise abatement snubber for vacuum pump system. **39:** 1012—1966

Cushing, William J. 3,117,481. Player piano system with replay and cut-off features. **39:** 439—1966

D

Daniel, Francis L. 3,196,730. Musical instruments. **39:** 227—1966

Davidson, Lawrence C. 3,225,859. Pipe line hydrophone system. **39:** 1214—1966

Deegan, George M. (see Allen, Richard E.). **39:** 437—1966

Degen, Donald S. 3,109,155. Protective casing for an ultrasonic transducer. **39:** 618—1966

de Groot, Jacob and Johannes M. G. Kaanders. 3,221,111. Hearing aid construction. **39:** 1006—1966

De Prisco, Carmine F. (see Jones, James Byron). **39:** 791 (3 patents)—1966

Dersch, William C. 3,198,884. Sound analyzing system. **39:** 1212—1966

Detrick, Kenneth L. 3,170,538. Speaker device. **39:** 221—1966

Dodge, Donald D. (see Cram, Milton E.). **39:** 791—1966

Dodge, Robert J. 3,214,753. Sound signal system. **39:** 1007—1966

Dorr, John A. 3,153,772. Force transducer. **39:** 625—1966

Doty, William E. N. 3,152,658. Method of generating seismic patterns. **39:** 796—1966

—— 3,209,322. Method of seismic prospecting. **39:** 809—1966

——, **Jimmy R. Cole, and Milford R. Lee.** 3,208,545. Apparatus for controlling a seismic vibrator. **39:** 807—1966

Dow, Willard and Stephen L. Stillman, Jr. 3,174,128. Combined depth monitoring and seismic surveying apparatus. **39:** 811—1966

Dowling, Donald J. (see Mazzagatti, Roy P.). **39:** 796—1966

Drenkelfort, Hans. 3,195,103. Echo-sounding system. **39:** 448—1966

Ducote, Behrman A. and Louis E. Adin. 3,209,081. Subcutaneously implanted electronic device. **39:** 1006—1966

Duda, John, Uno Ingard, and Frederick M. Oran. 3,195,679. Sound attenuator and method of producing same. **39:** 446—1966

Dudler, Hans A. 3,185,251. Industrial stethoscope. **39:** 221—1966

Dudognon, Jean-Pierre. 3,186,509. High fidelity loudspeaker system. **39:** 222—1966

Dumke, William P. and Rudolph R. Haering. 3,196,384. Ultrasonic amplifier. **39:** 438—1966

Dunaway, James H. 3,198,282. Internal combustion type seismic wave generator. **39:** 805—1966

Duncan, Robert H., Thomas Paul Miller, Anthony V. Maciulis, and Solly L. Fudaley. 3,060,265. Conference call circuit. **39:** 620—1966

Dunne, Brian B. 3,194,207. Underwater sound sources. **39:** 448—1966

Dunsbee, John. 3,132,715. Noise reducing enclosures. **39:** 442—1966

Duthion, Louis and Jean H. Bertin. 3,174,581. Removable silencer device for jet engines. **39:** 444—1966

Dyer, John N. and Martin Ruderfer. 3,108,469. Non-contacting ultrasonic gage. **39:** 622—1966

E

Earthman, James C. 3,209,320. System for analyzing seismic signals. **39:** 808—1966

Eckel, Oliver C. 3,136,397. Assembly of acoustical panels with retainers. **39:** 435—1966

Edwards, Howard C. 3,181,646. Silencer having contiguous concentric layers of sound absorbent material. **39:** 445—1966

Ehlert, Gilbert W., Albert W. Musgrave, Paul E. Nash, and Roderick M. Nugent. 3,181,643. Combining multiple seismic records. **39:** 799—1966

Eisler, Joseph D. and Daniel Silverman. 3,195,676. Cancellation of secondary seismic reflections. **39:** 805—1966

Elliott, Sheldon E. (see Lindsey, Joe P.). **39:** 804—1966

Elmore, William C. 2,891,180. Support for vibratory devices. **39:** 792—1966

—— (see Jones, James Byron). **39:** 791 (3 patents)—1966

Elston, Alvin W. 3,202,962. Transducer. **39:** 626—1966

Engle, Allen W., John L. Casey, and Adrian P. Brokaw. 3,112,466. Acoustic well logging system. **39:** 793—1966

Erickson, Norman B. 3,139,477. Electrical musical instrument. **39:** 442—1966

Estes, Nelson N. (see Wittenborn, August F.). **39:** 811—1966

Evans, Julian F. (see Cordell, Ralph L.). **39:** 794—1966

F

Fail, Jean-Pierre, Gerard Grau, and Michel Lavergne. 3,216,525. Fluid actuated vibrator. **39:** 810—1966

Fair, Delbert W. 3,159,232. Shear wave transducer. **39:** 798—1966

—— (see Clynch, Frank). **39:** 798—1966

Fair, Irvin E. 3,234,488. Light modulable circuit element. **39:** 1210—1966

Falkner, Eric Arthur. 3,149,606. Accelerometers. **39:** 623—1966

Fatuzzo, Ennio (see Nitsche, Rudolf). **39:** 621—1966

Fauser, Richard F. 3,126,782. Solenoid assembly means for actuating piano playing means. **39:** 439—1966

Feid, Jack T. 3,118,516. Sound absorbing film faced boards of mineral fibers and method of making same. **39:** 220—1966

Ferris, Warren S. and Robert M. Johnson. 3,227,814. Apparatus for correlating the operation of sound reproducing and picture projecting devices. **39:** 1008—1966

Finch, Horace T. 3,198,489. Compound ultrasonic transducer and mounting means therefor. **39:** 447—1966

Finney, William J. 3,212,053. Sonar system. **39:** 625—1966

Fisher, Gene A. 3,172,114. Magnetic recording device. **39:** 787—1966

Flatow, Tobias. 3,130,809. Method and apparatus for generation of seismic waves. **39:** 795—1966

Flynn, Maurice J. 3,218,887. Echo-ranging devices. **39:** 1212—1966

Fortman, William K. 3,064,619. Acoustic generator and shock wave radiator. **39:** 1015—1966

—— 3,070,313. Apparatus for the acoustic treatment of liquids. **39:** 228—1966

Foss, Rene N. 3,205,475. Torpedo tracking system. **39:** 625—1966

Foster, Kenneth W. 3,222,634. Underwater locating device. **39**: 1213—1966
Frank, Karl F. 3,057,209. Seismic vibration pickup means. **39**: 792—1966
Frederick, Charles L. (see Worlton, Daniel C.). **39**: 792—1966
Frielinghaus, Klaus H. 3,110,007. Ultrasonic vehicle detector. **39**: 618—1966
—— (see Kendall, Hugh C.). **39**: 618—1966
Fudaley, Solly L. (see Duncan, Robert H.). **39**: 620—1966

G

Gabor, Dennis. 3,183,310. Bandwidth compression and expansion system for transmission of speech. **39**: 1015—1966
Gardiner, Paul C., Lawrence E. Jewett, and George Lupton Broomell, Jr. 3,225,325. Range gating means. **39**: 1213—1966
Gardner, Robert S. 3,212,054. Transmitter keying and receiver blanking circuit. **39**: 626—1966
Garten, Roy E., Jr. 3,159,808. Method and apparatus for plotting seismic data. **39**: 798—1966
Gary, Wright W., Jr., Lionel Isenberg, and Max A. Nadler. 3,132,714. Acoustic panel. **39**: 435—1966
Gerstman, Louis J. and John L. Kelly, Jr. 3,158,685. Synthesis of speech from code signals. **39**: 227—1966
Geyer, Leon F. (see Tondreau, Albert W.). **39**: 227—1966
Giltzow, James H. 3,220,296. Music teaching device. **39**: 1211—1966
Giordano, Michele. 3,174,583. Muffler for internal combustion engines. **39**: 1012—1966
Glazier, Walter H. 3,185,250. Seismic pulse generator. **39**: 800—1966
Goddard, Daniel Ray. 3,221,443. Musical instrument. **39**: 1211—1966
Goldberg, Hyman. 3,229,049. Hearing aid. **39**: 1209—1966
Goodman, Willard B. 3,195,659. Sonic pile driver. **39**: 805—1966
Gordon, Douglas. 3,168,936. Muffler for small internal combustion engines. **39**: 443—1966
Görike, Rudolf and Karl Schuster. 3,204,031. Moving coil microphone arrangement. **39**: 437—1966
Graf, Victor V. (see Anstey, Nigel A.). **39**: 796—1966
Gratzer, Louis B. 3,191,380. Jet noise suppressor. **39**: 1013—1966
Grau, Gerard (see Fail, Jean-Pierre). **39**: 810—1966
Gray, John B. 3,109,898. Tape feed mechanism. **39**: 225—1966
Green, Raymond E. (see Anstey, Nigel A.). **39**: 796—1966
Gregory, Robert F. and Charles W. Bogs. 3,208,547. Seismic prospecting. **39**: 807—1966
Grieg, Donald D. 3,212,055. Distance measuring system. **39**: 626—1966
—— 3,212,056. Dual transducer device. **39**: 626—1966.
Griffin, William C. 3,220,295. Musical toy. **39**: 1211—1966
Groenendyke, Goethe M. 3,129,404. Methods and apparatus for seismic section recording. **39**: 795—1966
Grossman, George J., Jr. 3,209,323. Information retrieval system for logging while drilling. **39**: 809—1966
Guckenburg, Walter. 3,126,456. Magnetic recording head. **39**: 785—1966
Guest, Lawrence Vincent. 3,137,772. Sound recording and reproducing apparatus using record tapes. **39**: 1009—1966
Guettner, Werner, Clemens Starke, and Franz Sapara. 3,209,080. Electrical hearing aid. **39**: 436—1966
Guinness, John C. 3,224,315. Means to mute wind instruments. **39**: 1211—1966
Gussining, Nils T. A. 3,160,715. Electrostatic loudspeakers. **39**: 221—1966

H

Haering, Rudolph R. (see Dumke, William P.). **39**: 438—1966
Hagemann, Julius. 3,213,410. Channel navigating system. **39**: 626—1966
Hald, Therkel. 3,171,506. Muffler for refrigerator compressor and comprising U-shaped members. **39**: 444—1966
Hales, Frederick W. (see Anstey, Nigel A.). **39**: 796—1966
Hall, George R. (see Cookerly, Jack C.). **39**: 790 (2 patents)—1966
Halliday, William. 3,196,383. Pulse-responsive apparatus. **39**: 448—1966
Hamblin, Robert J. J. 3,180,712. Two-stage converter-muffler. **39**: 1012—1966
Hamlin, Halley H. (see Williams, Alfred L. W.). **39**: 1017—1966
Hampel, Robert H. 3,064,516. Musical instrument with improved spring bearing. **39**: 621—1966
Hanes, Robert H. and Robert J. Youngquist. 3,107,279. Transducing apparatus and cartridge therefor having duplicate coaxial reels. **39**: 224—1966
Hanley, Timothy L. (see Lones, Dain B.) **39**: 623—1966
Hargrave, Willard B. 3,220,505. Audiometric headset. **39**: 1209—1966
Hart, Robert N. (see Alexander, Warren A.). **39**: 808—1966
Hartman, Leonard M. 3,218,904. Guitar training device. **39**: 1211—1966
Hatschek, Rudolf (see Busch, Siegfried). **39**: 621—1966
Heath, Oran M. 3,218,903. Fingered harmonica. **39**: 1212—1966
Hecht, William. 3,177,301. Sound translating device. **39**: 221—1966
—— 3,193,627. High fidelity loudspeakers. **39**: 222—1966
Hensley, William A., Jr. 3,212,600. Seismic exploration of water covered areas. **39**: 810—1966
Hiersch, Frederick, A. 3,191,377. Turbo-jet fan muffler. **39**: 1013—1966
Higley, Richard B. (see Tracy, William L.). **39**: 623—1966
Hillery, Herbert V. and Frederick O. Bohls. 3,195,677. Triplane reflector with controlled frequency-dependent target strength. **39**: 229—1966
Hitt, William C. 3,058,338. Ultrasonic thickness comparator. **39**: 622—1966
Hobbs, Revis V. (see Snoddy, Glen T.). **39**: 790—1966
Hoffmann, Helmut (see Karmann, Richard). **39**: 1011—1966
Holley, Leman M. 3,174,577. Sonic logging in casing. **39**: 798—1966
Holmes, Thomas H. and Oswald A. Itria. 3,205,970. Acoustical well logging tool. **39**: 806—1966
Hoover, Herbert L. and Neil D. Van Dyke. 3,051,915. Ultrasonic delay line. **39**: 1007—1966
Hopf, Dieter. 3,204,510. Stringed instrument. **39**: 440—1966
Hopping, Alvin S. 3,223,771. Electronic musical instrument employing finger-pressure means to sequentially energize oscillator means and amplifier means. **39**: 1012—1966
Horwitz, Lawrence P., Jose Reines, and Glenmore L. Shelton, Jr. 3,196,212. Local amplitude detector. **39**: 1015—1966
Howell, Derek. 3,110,770. Apparatus for use in stethoscopy. **39**: 617—1966
Hubbard, Charles L., Charles J. Charske, and Donald H. Britton. 3,175,638. Well logger. **39**: 799—1966
Hueber, Fritz M. J. 3,231,686. Acoustic apparatus. **39**: 1209—1966
Hulse, Clintion V. (see Johanson, Donald L.). **39**: 436—1966

Humphreys, Donald M. 3,171,130. Magnetic recording. **39**: 787—1966
Hyden, Irwin F. 3,126,436. Brass voice formant system for electronic organ. **39**: 441—1966
Hyman, Abraham. 3,222,456. Diagnostic audiometer. **39**: 1006—1966

I

Ibanez, Ivan and Ramon Ubeda Perello. 3,066,199. Pseudo-stereophonic distributor for cinematograph reproductions. **39**: 1008—1966
Ingard, Uno (see Duda, John). **39**: 446—1966
Isenberg, Lionel (see Gary, Wright W., Jr.). **39**: 435—1966
Itria, Oswald A. 3,127,950. Method of determining shear wave velocities. **39**: 794—1966
—— (see Holmes, Thomas H.). **39**: 806—1966

J

Jacke, Stanley E. 3,218,488. Transducer. **39**: 1011—1966
Janowsky, Ralph H. and John H. Riggs. 3,153,702. Volume compensated stereophonic phonograph. **39**: 620—1966
Jaquith, Douglas. 3,057,243. Mouthpiece for a wind instrument. **39**: 621—1966
Jespersen, Oliver. 3,183,305. Portable sound system. **39**: 619—1966
Jettinghoff, Paul F. 3,191,715. Muffler. **39**: 446—1966
Jeung, Jasper Lowe (see Rosenberg, Harold William). **39**: 619—1966
Jewett, Lawrence E. (see Gardiner, Paul C.). **39**: 1213—1966
Joannou, Kyriacos. 3.105,965. Combined read-write and erase head assembly. **39**: 223—1966
Johanson, Donald L. and Clintion V. Hulse. 3,201,528. Multi-directional hearing aid. **39**: 436—1966
Johnsen, H. C. 3,212,599. Seismic exploration. **39**: 809—1966
Johnson, Lee D. 3,200,206. Control apparatus. **39**: 223—1966
Johnson, Robert B. 3,133,159. Magnetic record-playback head. **39**: 1008—1966
Johnson, Robert M. (see Ferris, Warren S.). **39**: 1008—1966
Johnson, Virgil R. 3,066,754. Single frequency prospecting. **39**: 793—1966
Jones, Clayton C. 3,204,358. Audio signal system. **39**: 437—1966
Jones, Edward M. and Wesley Love. 3,124,635. Photoelectric musical instruments and the like. **39**: 441—1966
—— (see Bissonette, Alfred John). **39**: 441—1966
Jones, Hugh R. 3,200,902. Replaceable cartridge acoustical muffler. **39**: 1014—1966
Jones, James Byron. 3,209,447. Transducer coupling system. **39**: 792—1966
—— 3,209,448. Vibratory welding method and apparatus. **39**: 792—1966
——, **Carmine F. De Prisco, and William C. Elmore.** 2,985,954. Method and apparatus employing vibratory energy for bonding metals. **39**: 791—1966
——, **William C. Elmore, and Carmine F. De Prisco.** 2,946,119. Method and apparatus employing vibratory energy for bonding metals. **39**: 791—1966
——, **William C. Elmore, and Carmine F. De Prisco.** 2,946,120. Seam vibratory welding apparatus and method. **39**: 791—1966
——, **Harold L. McKaig, Jr., Nicholas Maropis, and Charles A. Boyd.** 3,210,724. Vibratory energy radiating system. **39**: 811—1966
Joslow, David L. 3,137,429. Biasing means for capstan pressure wheel. **39**: 1009—1966

K

Kaanders, Johannes M. G. (see de Groot, Jacob). **39**: 1006—1966
Kalbfell, David C. 3,205,477. Electroacoustical logging while drilling wells. **39**: 806—1966
Kanamuller, Franz X. 3,105,964. Magnetic head positioning system. **39**: 223—1966
Karmann, Richard, Helmut Hoffmann, and Otto Brünnert. 3,222,462. Electroacoustic transducer. **39**: 1011—1966
Kaserman, John A. and Robert B. Oliver. 3,063,290. System for ultrasonic inspection of tubular objects. **39**: 622—1966
Kaufman, Myron N. and Irwin May. 3,197,540. Wake simulator. **39**: 448—1966
Kelly, John L., Jr. (see Gerstman, Louis J.). **39**: 227—1966
Kendall, Hugh C., John H. Auer, Jr., Norman A. Bolton, and Klaus H. Frielinghaus. 3,110,008. Vehicle detection apparatus. **39**: 618—1966
Kester, Ralph C., Jr. 3,215,020. Musical instrument. **39**: 790—1966
—— 3,215,021. Drum. **39**: 790—1966
Kihara, Nobutoshi and Kenji Seutsugu. 3,144,521. Magnetic tape recorder. **39**: 1010—1966
Kirby, Robert A. and Gerald M. Webster. 3,215,223. Recoilless seismic source. **39**: 810—1966
Kleesattel, Claus, Lewis Balamuth, and Arthur Kuris. 3,113,225. Ultrasonic vibration generator. **39**: 788—1966
Kliewer, Donald L. 3,230,319. Dynamic ear phone. **39**: 1210—1966
Kliewer, Edward A., Sr. 3,186,511. Air jet exhaust muffler. **39**: 445—1966
Klingel, John B. 3,171,507. Muffler for fired heater autoclave system. **39**: 444—1966
Knoth, Norman P. 3,146,316. Tape recorder. **39**: 1010—1966
Knox, Lewis A. 3,217,287. Array phasing by variable-speed magnetic drums. **39**: 1018—1966
Kolb, Robert H. 3,115,774. Magnetostrictive drill string logging device. **39**: 793—1966
Kozinski, Joseph. 3,202,845. Ultra-sonic electrode applicator. **39**: 627—1966
Krauss, Serge L. 3,200,899. Electronic dynamic sound level indicator. **39**: 226—1966
Krebs, Leo (see Rhodes, Orville). **39**: 227—1966
Kritz, Jack. 3,114,848. High efficiency sonic generator. **39**: 789—1966
—— 3,198,970. Piezoelectric vibration transducer. **39**: 438—1966
Kuhrt, Friedrich and Gustav Stark. 3,146,317. Hall-effect magnetic transducer. **39**: 1010—1966
Kuklock, Emmett N. 3,197,577. Wax retarder baffle for hearing aids. **39**: 436—1966
Kunze, Willy. 3,195,102. Device using the echo sounding method for the indication of reflecting objects. **39**: 229—1966
Kuris, Arthur (see Kleesattel, Claus). **39**: 788—1966

L

Langevin, Robert A. 3,219,850. Electromechanical transducers. **39**: 1011—1966
Lash, Charles C. 3,208,546. Seismic shear-wave prospecting. **39**: 807—1966
Lavergne, Michel (see Castanet, Alain). **39**: 808—1966
—— (see Fail, Jean-Pierre). **39**: 810—1966
Lawrence, Walter. 3,190,960. Speech bandwidth compression systems. **39**: 447—1966
Leavell, Charles. 3,214,155. Pneumatic vibration eliminator. **39**: 1016—1966

Lebourg, Maurice P. 3,191,142. Low acoustic velocity support member for logging tools. **39**: 803—1966
Lee, Burton D. Re. 25,902. Seismic prospecting. **39**: 793—1966
Lee, Milford R. (see Doty, William E. N.). **39**: 807—1966
Lemelson, Jerome H. 3,106,612. Magnetic recording system. **39**: 224—1966
Lemmerman, Carl W. 3,120,295. Wall and door structure for a sound proof room. **39**: 220—1966
—— 3,185,252. Jet engine noise attenuator. **39**: 1013—1966
Lemmond, Charles Q. 3,171,106. Information storage system. **39**: 787—1966
Lentz, Ervin C. 3,176,790. Muffler. **39**: 444—1966
—— 3,209,860. Muffler with dual expansion chambers. **39**: 1015—1966
Lester, Robert A. 3,109,112. Double frequency transducer. **39**: 622—1966
—— (see Nelkin, Arthur). **39**: 225—1966
Levin, Franklyn K. and Roberto Sarmiento. 3,208,548. Earth logging system. **39**: 807—1966
Levin, Simon. 3,144,520. Magnetostrictive record and recording apparatus. **39**: 1010—1966
Levy, Sidney E. and Bernard C. Sharp. 3,201,530. Modular component assembly of microphones. **39**: 437—1966
Lewis, Frederick W. 3,194,897. Semi-conductor hearing aid amplifier. **39**: 435—1966
——, **David A. Meyer, and Milton J. Pernula.** 3,233,048. Hearing aid. **39**: 1210—1966
Liben, William. 3,175,639. Method for measuring formation porosity, permeability and mud cake thickness in oil well bore holes by sonic pulses. **39**: 799—1966
Liberman, Arie. 3,158,686. Communication system. **39**: 225—1966
Liebl, Albert (see Richt, Hubert). **39**: 786—1966
Lindsey, Joe P., Sheldon E. Elliott, and Ralph C. Loring. 3,193,797. Detection of low signal-to-noise ratio seismic signals. **39**: 804—1966
—— (see Naquin, Paul J., Jr.). **39**: 810—1966
Lo Duca, Thomas S. 3,135,153. Keyboard action assemblies. **39**: 441—1966
Lones, Dain B. and Timothy L. Hanley. 3,152,485. Magnetic accelerometer. **39**: 623—1966
Loofbourrow, Robert J. (see Walker, Hugh O., Jr.). **39**: 795—1966
Loring, Ralph C. (see Lindsey, Joe P.). **39**: 804—1966
Love, Wesley (see Jones, Edward M.). **39**: 441—1966
Loving, Frank A., Jr. 3,165,916. Noise-reducing structure. **39**: 791—1966
Lowe, Charles Thomas. 3,191,480. Musical instrument. **39**: 226—1966
—— 3,205,751. Musical instrument. **39**: 440—1966
Lowenthal, Serge (see Simon, Jean-Claude). **39**: 1213—1966
Lukso, Richard. 3,167,667. Piezoelectric force controller. **39**: 624—1966
Lynn, Ralph D. 3,209,319. Mechanical spread corrector with variable velocity function. **39**: 808—1966
Lyon, William H. 3,125,644. Automatic recorder-reproducer systems. **39**: 785—1966

M

Maciulis, Anthony V. (see Duncan, Robert H.) **39**: 620—1966
Maes, Guy. 3,220,028. Radio-sono-buoys. **39**: 1213—1966
Maille, Jean Paul. 3,101,390. Apparatus for audio-vocal conditioning. **39**: 1212—1966
Mallers, Nick. 3,060,263. Audio system for drive-in theatres. **39**: 619—1966
Markowitz, Jerome. 3,125,180. Electro acoustic transducer device. **39**: 441—1966
Maropis, Nicholas (see Jones, James Byron). **39**: 811—1966
Martin, Herbert. 3,189,122. Muffler with dual pairs of curved and perforated chamber defining walls. **39**: 445—1966
Martin, Richard T. 3,197,576. In-the-ear hearing aid. **39**: 436—1966
—— **and James L. Talmage.** 3,210,483. Auditory device. **39**: 1209—1966
Mason, Warren P. 3,064,213. Electromechanical wave transmission systems. **39**: 618—1966
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Feedback effects of audition and vocal effort on intensity of voice. Murray Alpert. 39: 1218—1966
Instrumental method for improved intensity-discrimination data. Richard A. Campbell and Elaine Z. Lasky. 39: 1262—1966
Loudness as a function of sound intensity and duration: an analysis. Jozef J. Zwislocki. 39: 1262—1966
Masking transforms the power function for loudness. S. S. Stevens and Miguelina Guirao. 39: 1261—1966
Subjective and objective measurement of the loudness level of single and repeated impulses. W. Reichardt. 39: 1261—1966

4.7 Masking. (See also 5.5.)

Papers

Auditory intensity perception and neural coding. Richard A. Campbell. 39: 1030—1966
Binaural masking of speech by periodically modulated noise. Raymond Carhart, Tom W. Tillman, and Kenneth R. Johnson. 39: 1037—1966
Detection of auditory signals in reproducible noise. Sheila M. Pfafflin and M. V. Mathews. 39: 340—1966
Feedback and psychophysical variables in signal detection. Edward C. Carterette, Morton P. Friedman, and Melvin J. Wyman. 39: 1051—1966
Interaural phase effects in the masking of signals of different durations. David M. Green. 39: 720—1966
Interaural time and intensity difference and the MLD. Stanley Zerlin. 39: 134—1966
Laboratory tests of physiological–psychological reactions to sonic booms. K. D. Kryter. 39: S65—1966
Masking and discrimination. C. E. Bos and E. de Boer. 39: 708—1966
Masking of speech by aircraft noise. K. D. Kryter and Carl E. Williams. 39: 138—1966
Physiological correlate of tonal masking. Alfred Finck. 39: 1056—1966
Power-group transformations under glare, masking, and recruitment. S. S. Stevens. 39: 725—1966
Remote masking in the absence of intra-aural muscles. Robert C. Bilger. 39: 103—1966

Letters to the Editor

Critical bands and the residue. G. Bruce Henning. 39: 402—1966
Intelligibility of speech presented to the right or left ear in binaural noise. Donald D. Dirks and Edward C. Carterette. 39: 401—1966

Abstracts

Binaural masking-level difference and improvements in intelligibility. H. Levitt and L. R. Rabiner. **39**: 1232—1966

Binaural thresholds of pulsive signals and place of detection on the basilar membrane. J. L. Flanagan and B. J. Watson. **39**: 1232—1966

Critical band in binaural detection. B. E. Mulligan and M. J. Mulligan. **39**: 1232—1966

Crosscorrelation model for binaural unmasking. Man Mohan Sondhi. **39**: 1232—1966

Effect of head movement on speech reception in the presence of noise. Wayne O. Olsen. **39**: 1258—1966

Effect on detectability of interaural signal-frequency disparity. Donald E. Robinson. **39**: 1231—1966

Frequency discrimination in noise. G. Bruce Henning. **39**: 1247—1966

Masking by continuous and gated sinusoids. David M. Green. **39**: 1246—1966

Masking-level differences with continuous and pulsed masking noise. Dennis McFadden. **39**: 1231—1966

Masking transforms the power function for loudness. S. S. Stevens and Miguelina Guirao. **39**: 1261—1966

Poststimulatory auditory fatigue of masked and quiet threshold. J. H. Smith and C. V. Anderson. **39**: 1262—1966

Psychometric functions for the antiphasic binaural conditions $N0S\pi$ and $N\pi S0$. Rand B. Evans, Ann Tucker, and Lloyd A. Jeffress. **39**: 1232—1966

Tests of basal cochlear contribution to temporal processing. Jerry V. Tobias and Kennon H. Shank. **39**: 1233—1966

Errata

Remote masking in the absence of intra-aural muscles [J. Acoust. Soc. Am. **39**, 103-108 (1966)]. Robert C. Bilger. **39**: 978—1966

4.8 Phase Effects. (See also 4.3.)

Papers

Binaural masking of speech by periodically modulated noise. Raymond Carhart, Tom W. Tillman, and Kenneth R. Johnson. **39**: 1037—1966

Electrophysiological analog of the interaural time–intensity trade. Frederic G. Worden, James T. Marsh, and Frederick J. Bremner. **39**: 1086—1966

Examination of binaural interaction. Bruce H. Deatherage. **39**: 232—1966

Interaural phase effects in the masking of signals of different durations. David M. Green. **39**: 720—1966

4.9 Pitch. Absolute Pitch

Papers

Frequency discrimination of random-amplitude tones. G. Bruce Henning. **39**: 336—1966

Pitch discrimination of jittered pulse trains. Aaron E. Rosenberg. **39**: 920—1966

Abstracts

Effects on detectability of frequency variation during an observation interval. Ervin R. Hafter, Donald Henderson, and Walter T. Bourbon. **39**: 1247—1966

Frequency and time uncertainty in auditory detection. Walter T. Bourbon, Ervin R. Hafter, and Thomas R. Evans. **39**: 1247—1966

Frequency discrimination as measured by AB and ABX procedures. Michael G. Saslow. **39**: 1247—1966

Frequency discrimination in noise. G. Bruce Henning. **39**: 1247—1966

Frequency-selective detection of signals in noise. Gordon Z. Greenberg and W. D. Larkin. **39**: 1247—1966

Pitch discrimination of pulse-train bursts. Aaron E. Rosenberg. **39**: 1233—1966

Study of pitch-variation rates. Nathan D. Phillips. **39**: 1257—1966

4.10 Subjective Tones

Papers

Pitch discrimination of jittered pulse trains. Aaron E. Rosenberg. **39**: 920—1966

Letters to the Editor

Critical bands and the residue. G. Bruce Henning. **39**: 402—1966

Abstracts

PSE tracing method for subjective harmonics measurement and monaural phase effect on timbre. Mamoru Kuriyagawa and Akio Kameoka. **39**: 1263—1966

4..11 Theories of Hearing

Papers

Auditory intensity perception and neural coding. Richard A. Campbell. **39**: 1030—1966

Detection of auditory signals in reproducible noise. Sheila M. Pfafflin and M. V. Mathews. **39**: 340—1966

End point of lateralization for dichotic clicks. Harvey Babkoff and Samuel Sutton. **39**: 87—1966

Examination of binaural interaction. Bruce H. Deatherage. **39**: 232—1966

Interaural phase effects in the masking of signals of different durations. David M. Green. **39**: 720—1966

Interaural time and intensity difference and the MLD. Stanley Zerlin. **39**: 134—1966

Masking and discrimination. C. E. Bos and E. de Boer. **39**: 708—1966

Power-group transformations under glare, masking, and recruitment. S. S. Stevens. **39**: 725—1966

Remote masking in the absence of intra-aural muscles. Robert C. Bilger. **39**: 103—1966

Letters to the Editor

Comments on "Effects of waveform correlation and signal duration on detection of noise bursts in continuous noise." [D. H. Raab, E. Osman, and E. Rich, J. Acoust. Soc. Am. **35**, 1942-1946 (1963)]. David M. Green. **39**: 748—1966

Critical bands and the residue. G. Bruce Henning. **39**: 402—1966

Abstracts

Complex auditory discrimination and lesions of temporal cortex in the monkey: a progress report. James H. Dewson, III. **39**: 1254—1966

Errata

Remote masking in the absence of intra-aural muscles [J. Acoust. Soc. Am. **39**, 103-108 (1966)]. Robert C. Bilger. **39**: 978—1966

4.13 Ear Acoustical Impedance

Abstracts

External-ear replica for acoustical testing. B. B. Bauer, A. Rosenheck, and Louis A. Abbagnaro. **39**: 1264—1966

Impedance changes during surgery. R. S. Sweitzer. **39**: 1226—1966

4.14 Use of Ear Protectors, Earplugs

Patents

Dictation mask sound receiver. Horace L. Webb and Harold M. Steinman. **39**: 436—1966

Rigid shell helmet and rigging and sound attenuating means therefor. Jackson A. Aileo. **39**: 436—1966

4.15 Perception of Signals

Papers

Acoustic relations of the human vertex potential. Hallowell Davis and Stanley Zerlin. **39**: 109—1966

Calibration and analysis of underwater earphones by loudness-balance method. B. B. Bauer and E. L. Torick. **38**: 35—1966

Computerized investigation of threshold-decision phenomenon. Richard A. Campbell, C. L. Hutton, and C. W. Stuckey. **39**: 1034—1966

Detection of auditory signals in reproducible noise. Sheila M. Pfafflin and M. V. Mathews. **39**: 340—1966

Experimental studies in underwater directional communication. B. B. Bauer and E. L. Torick. **39**: 25—1966

Feedback and psychophysical variables in signal detection. Edward C. Carterette, Morton P. Friedman, and Melvin J. Wyman. **39**: 1051—1966

Human sidetone: Measurement of the frequency response and equalizing devices. T. S. Korn. **39**: 1063—1966

Interactions between synchronous neural responses to paired acoustic signals. Donald C. Teas. **39**: 1077—1966

Interaural phase effects in the masking of signals of different durations. David M. Green. **39**: 720—1966

Interaural time and intensity difference and the MLD. Stanley Zerlin. **39**: 134—1966

Masking and discrimination. C. E. Bos and E. de Boer. **39**: 708—1966

Measurement of perceived acoustic quality of sound-reproducing systems by means of factor analysis. Hannes Eisler. **39**: 484—1966

Pitch discrimination of jittered pulse trains. Aaron E. Rosenberg. **39**: 920—1966

Letters to the Editor

Comments on "Effects of waveform correlation and signal duration on detection of noise bursts in continuous noise" [D. H. Raab, E. Osman, and E. Rich, J. Acoust. Soc. Am. **35**, 1942-1946 (1963)]. David M. Green. **39**: 748—1966

Table of intensity increments. Jerry V. Tobias. **39**: 583—1966

Abstracts

Complex auditory discrimination and lesions of temporal cortex in the monkey: a progress report. James H. Dewson, III. **39**: 1254—1966

Correlations of auditory and visual signal-detection parameters. Walter J. Gunn and M. Loeb. **39**: 1248—1966

Effect of duration upon detection with gated noise and signal. Ann Tucker, Rand B. Evans, and Lloyd A. Jeffress. **39**: 1246—1966

Effect of signal duration on detection for an electrical model. Lloyd A. Jeffress and Audley D. Gaston, Jr. **39**: 1246—1966

Effect of stimulus duration on the detection of sinusoids added to continuous pedestals. Barry Leshowitz and David H. Raab. **39**: 1246—1966

Effects on detectability of frequency variation during an observation interval. Ervin R. Hafter, Donald Henderson, and Walter T. Bourbon. **39**: 1247—1966

Frequency and time uncertainty in auditory detection. Walter T. Bourbon, Ervin R. Hafter, and Thomas R. Evans. **39**: 1247—1966

Frequency discrimination as measured by AB and ABX procedures. Michael G. Saslow. **39**: 1247—1966

Frequency discrimination in noise. G. Bruce Henning. **39**: 1247—1966

Frequency-selective detection of signals in noise. Gordon Z. Greenberg and W. D. Larkin. **39**: 1247—1966

Intensity effects on the perception of competing messages. Jack Katz, Charles S. Lucas, and Marie H. Olroyd. **39**: 1233—1966

Masking by continuous and gated sinusoids. David M. Green. **39**: 1246—1966

Replication and revisions of Egan's method of free response. Charles S. Watson and Thomas L. Nichols. **39**: 1247—1966

Some computations relevant to the Webster-Jeffress model for binaural signal detection. Donald E. Robinson. **39**: 1232—1966

Testing for sequential dependencies. H. Levitt. **39**: 1248—1966

Tonal signal detection under various light stimulation conditions. William H. Watkins and John R. Schjelderup. **39**: 1263—1966

4.16 Vibration and Tactile Senses

Papers

Acoustic relations of the human vertex potential. Hallowell Davis and Stanley Zerlin. **39**: 109—1966

5 ACOUSTICAL INSTRUMENTS AND APPARATUS. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3z, 13.11, 13.11n, and 13.11t.)

5.1 General, Unclassified

Patents

Apparatus for use in stethoscopy. Derek Howell. **39**: 617—1966

Audio cardioscope. Michael E. Croslin. **39**: 1210—1966

Container cap with sound emitting means. Peter J. Scray and Cary A. Crews. **39**: 436—1966

Industrial stethoscope. Hans A. Dudler. **39**: 221—1966

Reciprocating sound-producing device. Arthur E. Neumann. **39**: 617—1966

Sonic alarm system. Charles K. Roberts. **39**: 617—1966

Stethoscope with dual convertible receiver. Derek R. Allen. **39**: 221—1966

Turkey caller. Edward L. Wisor. **39**: 617—1966

5.2 Amplifiers and Attenuators

Patents

Direct-coupled transistor amplifier. Lawrence M. Posen. **39**: 1007—1966

5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. Acoustic Delay Lines and Resonators. (See also 5.15 and 12.3f.)

Papers

Optical-fiber ultrasonic delay lines. I. L. Gelles. **39**: 1111—1966

Letters to the Editor

Effect of filter bandwidth and attenuation characteristic on sound-transmission-loss measurements. L. W. Sepmeyer and K. S. Oliphant. **39**: 399—1966

Technical Notes and Research Briefs

Optical-acoustical delay line. **39**: 1198—1966

Abstracts

Characterization of high-frequency echoes by orthonormal filtering. Lloyd C. Huff and F. H. Middleton. **39**: 1259—1966

Multiple-mode piezoelectric resonators. Morio Onoe. **39**: 1223—1966

Spectral contour plotter—an improved instrument for spectral analysis. Kenton J. Ide. **39**: 1265—1966

Useful formulas for piezoelectric ceramic resonators and their application to measurement of parameters. Morio Onoe and Hiromichi Jumonji. **39**: 1223—1966

Patents

Electro-mechanical delay line having ferroelectric transducer bonded to solid delay medium. Richard E. Allen and George M. Deegan. **39**: 437—1966

Electro-mechanical filters. Hidetoshi Tsuchiya. **39**: 783—1966

Electromechanical wave filter having resonant bars coupled to each other by torsion wires which also support bars. Hans Albsmeier and Werner Poschenrieder. **39**: 1007—1966

Electromechanical wave transmission systems. Warren P. Mason. **39**: 618—1966

Light modulable circuit element. Irvin E. Fair. **39**: 1210—1966

Ultrasonic delay line. Herbert L. Hoover and Neil D. Van Dyke. **39**: 1007—1966

Ultrasonic wave transmission device utilizing semiconductor piezoelectric material to provide selectable velocity of transmission. Donald L. White. **39**: 783—1966

Variable ultrasonic delay line. Holden P. Wright. **39**: 1007—1966

5.5 Audiometers. (See also 4.4 and 4.5.)

Papers

Amplitude of Békésy tracings with different attenuation rates. F. Harbert and I. M. Young. **39**: 914—1966

Letters to the Editor

Equivalent threshold sound-pressure levels for the TDH39/MX41-AR earphone. L. S. Whittle and M. E. Delany. **39**: 1187—1966

Normal hearing threshold determined by manual and self-recording techniques. J. J. Knight. **39**: 1184—1966

Normal threshold of hearing for pure tones by earphone listening with a self-recording audiometric technique. C. G. Rice and R. R. A. Coles. **39**: 1185—1966

Note on the data logging of audiometric measurements. G. R. C. Atherley, P. Lord, and J. Power. **39**: 1183—1966

5.6 Broadcasting (Radio and Television)

Patents

Audio nonsense generator. Abraham M. Reiter. **39**: 618—1966

5.8 Loudspeakers, Horns, Measurements. Practical Sound Sources. (See also 5.13, 5.17, and 5.18.)

Abstracts

Artificial voice. Harry F. Olson. **39**: 1263—1966

Horn-type moving-coil driver-unit development. J. A. Renkus and J. K. Hilliard. **39**: 1265—1966

Patents

Acoustical cabinet for loudspeakers. Richard M. Smith. **39**: 221—1966

Dynamic speaker. Philip C. Surh. **39**: 223—1966

Electromagnetically damped speaker system. Bernard W. Tichy. **39**: 437—1966

Electrostatic loudspeakers. Nils T. A. Gussining. **39**: 221—1966

High fidelity loudspeakers. William Hecht. **39**: 222—1966

High fidelity loudspeaker system. Jean-Pierre Dudognon. **39**: 222—1966

High fidelity sound reproducer. Stanley R. Rich. **39**: 437—1966

Loudspeaker. Francis Hugh Brittain. **39**: 223—1966

Loudspeaker. Tatsuo Suzuki. **39**: 222—1966

Loudspeaker assembly. Ezra Rushford Broadley. **39**: 222—1966

Loudspeaker assembly. Richard D. Schotter. **39**: 222—1966

Loudspeaker construction. John W. Woods. **39**: 223—1966

Loudspeaker system. Robert J. Pawlowski. **39**: 222—1966

Sound translating device. William Hecht. **39**: 221—1966

Speaker device. Kenneth L. Detrick. **39**: 221—1966

Speaker re-vibration system. Edgar S. Transue. **39**: 222—1966

Transducer. Garold D. Sears and Patrick M. Sullivan. **39**: 222—1966

5.9 Microphones. Microphone-Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)

Papers

Instrumentation techniques for measurement of sonic-boom signatures. David A. Hilton and James W. Newman, Jr. **39**: S31—1966

Reciprocity calibration in a tube with active-impedance termination. Louis G. Beatty. **39**: 40—1966

Sonar transducer calibration in a high-pressure tube. Louis G. Beatty, Robert J. Bobber, and David L. Phillips. **39**: 48—1966

Letters to the Editor

Capacitor microphone with ceramic diaphragm. T. G. Winter and H. E. Bass. **39**: 584—1966

Abstracts

Calibration of infrasonic microphones at WSMR. James A. Harmon, Henry J. Leinbach, Jr., and Nicholas Prince. **39**: 1265—1966

Head-contact microphone for efficient speech transmission. A. Rosenheck, A. DiMattia, and B. B. Bauer. **39**: 1264—1966

Measurement of specific acoustic impedance. Joseph Wood Rogers. **39**: 1265—1966

Speech intelligibility by head contact as function of location on head. Louis A. Abbagnaro, A. Rosenheck, and A. DiMattia. **39**: 1264—1966

Tubular shield for enhancing noise cancellation of pressure-gradient microphones. A. DiMattia and A. Rosenheck. **39**: 1264—1966

Patents

Amplifying circuit for capacitive microphones. Gerhart Boré. **39**: 437—1966

Capsule-enclosed electro-acoustic transducer and transistor-amplifier. Bernard Weingartner. **39**: 437—1966

Directional microphone with distance control. Bernhard Weingartner. **39**: 1007—1966

Handle microphone. Ernst Pless. **39**: 1007—1966

Microphone. Lyle E. Shoot. **39**: 437—1966

Modular component assembly of microphones. Sidney E. Levy and Bernard C. Sharp. **39**: 437—1966

Moving coil microphone arrangement. Rudolf Görike and Karl Schuster. **39**: 437—1966

5.10 Navigational Instruments Using Air Sound. Altitude-Measuring Instruments. Sound Ranging. (For Underwater Ranging, see 13.11n.)

Patents

Protective casing for an ultrasonic transducer. Donald S. Degen. **39**: 618—1966

Sound signal system. Robert J. Dodge. **39**: 1007—1966

Ultrasonic vehicle detector. Klaus H. Frielinghaus. **39**: 618—1966

Ultrasonic vehicle detector system. Norman A. Bolton and George Vande Sande. **39**: 619—1966

Vehicle detection apparatus. Hugh C. Kendall, John H. Auer, Jr., Norman A. Bolton, and Klaus H. Frielinghaus. **39**: 618—1966

5.11 Oscillators, Electrical and Mechanical

Subtitles

Oscillators. John C. Steinberg and T. G. Birdsall. **39**: 309—1966

5.13 Sound-Reproducing Systems, Including Public-Address Systems, Stereophonic Reproduction

Papers

Further study of the isopreference method of circuit evaluation. W. H. Tedford, Jr., and T. V. Frazier. **39**: 645—1966

Measurement of perceived acoustic quality of sound-reproducing systems by means of factor analysis. Hannes Eisler. **39**: 484—1966

Letters to the Editor

Extension to the theory of howlback in reverberant rooms. Herbert A. Antman. **39**: 399—1966

Abstracts

Experimental investigation of feedback in a sound system—room closed loop. W. K. Connor. **39**: 1266—1966

Some detailed aspects of sound reinforcing systems in reverberant churches. Charles R. Boner. **39**: 1267—1966

Patents

Audio system for drive-in theatres. Nick Mallers. **39**: 619—1966

Audio systems for drive-in theaters. Harold William Rosenberg, Jasper Lowe Jeung, and Hadyn L. Smith. **39**: 619—1966

Electrical signal delay device. William J. Ashworth. **39**: 619—1966

Portable sound system. Oliver Jespersen. **39**: 619—1966

Remote sound system monitor circuit. Edward S. Seeley. **39**: 619—1966

Sound tube head set. Edward C. Scanlon. **39**: 1008—1966

Stereophonic reverberation circuit. Jens Bang. **39**: 619—1966

5.15 Sound-Level Meters. Level Recorders. Sound-Pressure Measurement. (See also 5.4.)

Papers

Direct-recording frequency and amplitude meter for analysis of musical and other sonic waveforms. P. A. Tove, B. Norman, L. Isaksson, and J. Czekajewski. **39**: 362—1966

Patents

Sound level time integrator. Franklin W. Church and Lawrence W. Raymond. **39**: 1210—1966

5.16 Sound Recording and Reproducing. General

Papers

Experiment in ferroelectric-tape recording. Tiong Suy Yu and Hugh K. Dunn. **39**: 1090—1966

Patents

Apparatus for correlating the operation of sound reproducing and picture projecting devices. Warren S. Ferris and Robert M. Johnson. **39**: 1008—1966

Audio signal system. Clayton C. Jones. **39**: 437—1966

Aural check list. William K. Ojala. **39**: 620—1966

Pseudo-stereophonic distribution for cinematograph reproductions. Ivan Ibánez and Ramon Ubeda Perello. **39**: 1008—1966

Volume compensated stereophonic phonograph. Ralph H. Janowsky and John H. Riggs. **39**: 620—1966

5.16d Mechanical Recording and Reproducing

Patents

Sound reproducing device for dolls and the like. Adrian J. P. van den Hurk. **39**: 1210—1966

5.16f Photographic Recording and Reproducing

Patents

Control apparatus. Lee D. Johnson. **39**: 223—1966

5.16m Magnetic Recording and Reproducing

Patents

Adjustable air bearing supported magnetic head. Richard A. Stover. **39**: 788—1966

Air supported holder for recording and reproducing heads. Kurt Schlichting. **39**: 786—1966

Answering attachment for sound-recording machines. Robert K. Youtie. **39**: 1009—1966

Apparatus for recording and reproducing images on magnetic tape. Chester W. Newell. **39**: 784—1966

Arrangement in magnetic recorders. Viktor Pollaschek. **39**: 788—1966

Automatic recorder-reproducer systems. William H. Lyon. **39**: 785—1966

Automatic stop mechanism for tape recorders. Katsuya Atsumi. **39**: 1009—1966

Biasing means for capstan pressure wheel. David L. Joslow. **39**: 1009—1966

Capstan servo system. Bernard M. Brenner. **39**: 788—1966

Combination bias oscillator, mixer and recording amplifier. Kenneth A. Catto. **39**: 1008—1966

Combined read-write and erase head assembly. Kyriacos Joannou. **39**: 223—1966

Driving device for sound recording and reproducing apparatus using sound carrier tapes or wires. Harry Bugge. **39**: 784—1966

Hall-effect magnetic transducer. Friedrich Kuhrt and Gustav Stark. **39**: 1010—1966

Information storage system. Charles Q. Lemmond. **39**: 787—1966

Magnetic head and drum memory system. Russell D. Ricketts and Claus O. Silldorff. **39**: 784—1966

Magnetic head positioning system. Franz X. Kanamuller. **39**: 223—1966

Magnetic recorder head assembly. Herbert F. Welsh. **39**: 1008—1966

Magnetic record head assembly. Maurice W. Widener. **39**: 1009—1966

Magnetic recording. Donald M. Humphreys. **39**: 787—1966

Magnetic recording and reproducing system. Frederick G. Buhrendorf. **39**: 224—1966

Magnetic recording and reproducing system for periodical signals. Shiro Okamura. **39**: 786—1966

Magnetic recording device. Gene A. Fisher. **39**: 787—1966

Magnetic recording head. Walter Guckenburg. **39**: 785—1966

Magnetic recording system. Jerome H. Lemelson. **39**: 224—1966

Magnetic record-playback head. Robert B. Johnson. **39**: 1008—1966

Magnetic tape recorder. Nobutoshi Kihara and Kenji Suetsugu. **39**: 1010—1966

Magnetic tape recorder. Kenji Suetsugu. **39**: 224—1966

Magnetic tape recorder. Seiji Takashi. **39**: 1008—1966

Magnetic transducer head. John Blumenthal. **39**: 788—1966

Magnetostrictive record and recording apparatus. Simon Levin. **39**: 1010—1966

Means for maintaining spacing of a magnetic transducer from a rotary magnetic drum. Johannes Franciscus Van Oort. **39**: 788—1966

Method of and apparatus for recording and reproducing information. Edward L. Withey. **39**: 1009—1966

Method of and means for neutralizing inductive disturbances in magnetic reproducers. Yves-Jean Francois Brette. **39**: 787—1966

Miniature sound tape recorder or the like. Karl Cech. **39**: 785—1966

Mounting device for multiple magnetic transducer assemblies. William J. Wasylenko. **39**: 785—1966

Multi-channel sound recording and reproducing device. Robert E. Boyden. **39**: 225—1966

Pneumatically positioned record member. Robert L. Perkins and John G. Wilson. **39**: 784—1966

Recording and biasing head assembly for magnetic tape recorders. Katsuya Atsumi. **39**: 1010—1966

Recording and/or reproducing system. Armin Miller. **39**: 784—1966

Sound recording and reproducing apparatus. Peter John Aldridge. **39**: 786, 1009—1966

Sound recording and reproducing apparatus using record tapes. Lawrence Vincent Guest. **39**: 1009—1966

Sound reproducing and recording apparatus. Peter John Aldridge. **39**: 786—1966

Stereo tape recorder system. Carl W. Claras and Theodore Wickstrom. **39**: 785—1966

Tape drive and indexing system. Dennis D. Willard. **39**: 1010—1966

Tape feed mechanism. John B. Gray. **39**: 225—1966

Tape recorder. Norman P. Knoth. **39**: 1010—1966

Tape recorder. Eugene J. Polley and Richard L. Rost. **39**: 223—1966

Tape recorder. Richard L. Rost. **39**: 784—1966

Tape recorder circuit. Leonard Dodge Barry. **39**: 1009—1966

Tape recorders. Hubert Richt and Albert Liebl. **39**: 786—1966

Tape recorder transport. Stanley Berger and Leonard Rosenblatt. **39**: 784—1966

Transducer heads. Franklyn G. Nickl. **39**: 1010—1966

Transducer positioning system. Louis D. Stevens and John B. Clark. **39**: 223—1966

Transducing apparatus and cartridge therefor having duplicate coaxial reels. Robert H. Hanes and Robert J. Youngquist. **39**: 224—1966

Wide-record narrow-read magnetic head. Fred L. Rogers, Jr. **39**: 787—1966

5.16s Electrostatic Recording and Reproducing

Patents

Method and apparatus for electrostatic recording and reproducing. Donald E. Richardson. **39**: 1010—1966

5.17 Telephones, Telephone Earphones. (See also 5.13.) Intercommunication Systems

Papers

Calibration and analysis of underwater earphones by loudness-balance method. B. B. Bauer and E. L. Torick. **39**: 35—1966

Earcanal pressure generated by circumaural and supraaural earphones. E. A. G. Shaw. **39**: 471—1966

Earphone versus sound-field threshold sound-pressure levels for spondee words. Tom W. Tillman, Robert M. Johnson, and Wayne O. Olsen. **39**: 125—1966

Letters to the Editor

Equivalent threshold sound-pressure levels for the TDH39/MX41-AR earphone. L. S. Whittle and M. E. Delany. **39**: 1187—1966

Normal threshold of hearing for pure tones by earphone listening with a self-recording audiometric technique. C. G. Rice and R. R. A. Coles. **39**: 1185—1966

Abstracts

Some improvements in ear enclosures. A. DiMattia. **39**: 1264—1966

Subtitles

Telephone earphones. B. B. Bauer and E. L. Torick. **39**: 27—1966

Patents

Communication system. Arie Liberman. **39**: 225—1966

Conference call circuit. Ralph H. Duncan, Thomas Paul Miller, Anthony V. Maciulis, and Solly L. Fudaley. **39**: 620—1966

Dynamic ear phone. Donald L. Kliewer. **39**: 1210—1966

Gain control in response to ambient noise level. Vernon J. Meyers. **39**: 620—1966

Intercommunication system. John Earl Chapman. **39**: 1210—1966

Wireless loudspeaking telephone. Edward S. Peterson. **39**: 620—1966

5.18 Transducing Principles, Structures and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)

Papers

Calibration and analysis of underwater earphones by loudness-balance method. B. B. Bauer and E. L. Torick. **39**: 35—1966

Coupled thickness shear and flexure displacements in rectangular **AT** quartz plates. W. J. Spencer and R. M. Hunt. **39**: 929—1966

Expressions for the electromechanical coupling factor in terms of critical frequencies. A. Mohammed. **39**: 289—1966

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Patents

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Temperature-independent transducer. Frank G. Brockman and Paul W. Beck. **39**: 438—1966

Transducer unit for printing type element. David R. Williams. **39**: 620—1966

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News

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5.18d Electrodynamic Transducers

Patents

Transducer field structure assembly. Also L. Cohen. **39**: 226—1966

5.18e Electrostatic Transducers

Patents

Electro-static particle collecting device. Herbert S. Polin. **39**: 226—1966

5.18f Magnetostrictive Transducers

Papers

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Patents

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5.19 Tuning Forks, Frequency Standards, Frequency-Measuring and -Recording Instruments. Time Standards. Chronographs

Papers

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Patents

Electronic dynamic sound level indicator. Serge L. Krauss. **39**: 226—1966

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News

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6.2 Bells, Xylophones. Other Instruments having Rigid Vibrators

Patents

Musical instrument. Ralph C. Kester, Jr. **39**: 790—1966

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6.3 Brass Wind Instruments (Lip-Vibrated)

Abstracts

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Patents

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Drum operating mechanism. Joseph Peters. **39**: 226—1966

Drum support. Albert S. Walling. **39**: 226—1966

6.5 Pipe Organs

Papers

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Patents

Control system for pipe organs. Albert R. Rienstra. **39**: 439—1966

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6.6 Pianos and Other Keyboard Stringed Instruments

Abstracts

Decay patterns of harpsichord strings. Robert W. Pyle, Jr., and Theodore J. Schultz. **39**: 1220—1966

Patents

Bridge for stringed instruments. Eugen Unkel and Herbert Unkel. **39**: 1211—1966

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Abstracts

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Patents

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Abstracts

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Patents

Means to mute wind instruments. John C. Guinness. **39**: 1211—1966
Mouthpiece for a wind instrument. Douglas Jaquith. **39**: 621—1966
Musical instrument with improved spring bearing. Robert H. Hampel. **39**: 621—1966

6.9 Electrical Musical Instruments

Patents

Apparatus for generating electrical oscillations. Adolph Michel. **39**: 442—1966
Brass voice formant system for electronic organ. Irwin F. Hyden. **39**: 441—1966
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Patents

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Musical instrument with bellows operation. Donald J. Winch. **39**: 442—1966
Piano accordion. Arne Henry Nilsen. **39**: 790—1966

6.12 Intonation. Vibrato. Musical Scales. Musical Composition

Papers

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7 NOISE AND NOISE CONTROL

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7.2 Annoyance. Effect of Noise on Human Beings

Papers
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7.5 Noise Spectra

Papers
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7.6 Noise in Buildings. (See also 2.2.)

Papers
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7.7 Machinery Noise. Mufflers. Noise Silencers

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Exhaust system. Howard L. Brown and Howard A. Callendar. **39**: 1015—1966

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Muffler. Paul F. Jettinghoff. **39**: 446—1966

Muffler. Ervin C. Lentz. **39**: 444—1966

Muffler. Walter H. Powers. **39**: 443, 1014—1966

Muffler device. Patrick J. Conlin. **39**: 443—1966

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Mufflers for marine engines. William M. Betts and Reginald C. Requa. **39**: 1012—1966

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Muffler with dual expansion chambers. Ervin C. Lentz. **39**: 1015—1966

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Noise-suppression system for diesel engines having exhaust brake means. Wolfgang Scholtyssek. **39**: 446—1966

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Patents

Acoustic generator and shock wave radiator. William K. Fortman. **39**: 1015—1966

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Papers
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Papers
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Ultrasonic relaxational behavior of biological macromolecules. Peter D. Edmonds. 39: 1243—1966
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11.2 **Reflection, Refraction, Diffraction, and Interference of Sound Waves**

Papers
Acoustic interaction effects in arrays of small spheres. D. E. Weston. 39: 316—1966
Impedance of tapered structures. Frederick J. Young. 39: 841—1966
Low-frequency scattering by soft spheroids. James E. Burke. 39: 826—1966
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Sound scattering by elastic cylindrical shells. R. D. Doolittle and H. Überall. 39: 272—1966
Underwater sound reflection from a pressure-release sinusoidal surface. G. R. Barnard, C. W. Horton, M. K. Miller, and F. R. Spitznogle. 39: 1162—1966
Use of sound pulses for a study of circumferential waves. H. Überall, R. D. Doolittle, and J. V. McNicholas. 39: 564—1966

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Circumferential waves on solid cylinders. O. D. Grace and R. R. Goodman. 39: 173—1966
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11.3 Velocity and Attenuation of Sound Waves. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)

Papers

Geometric diffraction loss in longitudinal- and shear-wave attenuation measurements in an isotropic half-space. Arthur Edson Lord, Jr. **39**: 650—1966

Intensity–decay laws for sound propagation in shallow water of variable depth. R. N. Denham. **39**: 1170—1966

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Reflection of sound waves from transition layers. Ravindra N. Gupta. **39**: 255—1966

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Abstracts

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11.4 Waves in Bounded Media

Papers

Parametric solution of the dispersion relation for guided sound propagation in shallow water. Allan D. Pierce. **39**: 1139—1966

Three-dimensional and shell-theory analysis for axisymmetric vibrations of orthotropic shells. I. Mirsky. **39**: 549—1966

Abstracts

Ray transmission in a sound channel with a pseudo-random boundary. A. D. Seifer and M. J. Jacobson. **39**: 1216—1966

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11.5 Radiation from Vibrating Objects in Air and Other Gases. Acoustic Impedance. Sources of Sound. (See also 5.3, 12.3z, and 13.7.)

Papers

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Computer simulation of spherical nearfield measuring array for farfield-pattern predictions. Donald A. Murphy. **39**: 1222—1966

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Numerical methods for general acoustic radiation problems: a survey. Harry A. Schenck. **39**: 1227—1966

Solution of radiation and scattering problems by integral equations. George Chertock. **39**: 1221—1966

Some computed effects on a concentric elastic shell on the farfield characteristics of a cylindrical transducer. W. C. Moyer and E. A. Tucker. **39**: 1222—1966

Some measurements of the effect of geometric scale on structural impedance and radiated sound. Fred Schloss and Wayne T. Reader. **39**: 1237—1966

Transduction of boundary-layer noise by a rectangular panel. Pritchard H. White. **39**: 1254—1966

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Acoustic radiation from a finite cylinder. **39**: 1202—1966

11.6 Wave Propagation in Tubes

Papers
Impedance of tapered structures. Frederick J. Young. **39**: 841—1966
Parametric solution of the dispersion relation for guided sound propagation in shallow water. Allan D. Pierce. **39**: 1139—1966
Reciprocity calibration in a tube with active-impedance termination. Louis G. Beatty. **39**: 40—1966
Sonar transducer calibration in a high-pressure tube. Louis G. Beatty, Robert J. Bobber, and David L. Phillips. **39**: 48—1966

Abstracts
Acoustic waves from an impulsive source in a fluid-filled borehole. J. H. Rosenbaum. **39**: 1249—1966
Measurement of the attenuation constant in an acoustic tube. Joseph Wood Rogers. **39**: 1230—1966

11.7 Mathematical Theory of Wave Propagation. Ray Acoustics. (See also 11.1.5.)

Papers
Effect of acoustoelectric interactions on the electrical impedance of a CdS bar. E. L. Adler and G. W. Farnell. **39**: 959—1966
Effects of slow steady flow on a pure-tone sound field. P. W. Smith, Jr. **39**: 1027—1966
Frequency equations for wave propagation in an initially stressed circular cylinder. W. T. Chen and T. W. Wright. **39**: 847—1966
Geometric diffraction loss in longitudinal- and shear-wave attenuation measurements in an isotropic half-space. Arthur Edson Lord, Jr. **39**: 650—1966
Impedance of tapered structures. Frederick J. Young. **39**: 841—1966
Large-amplitude linear vibrations of tensioned strings. John Dimeff, James W. Lane, and Murray S. Gardner. **39**: 849—1966
Low-frequency scattering by soft spheroids. James E. Burke. **39**: 826—1966
Measurements of the scattering of sound from turbulence. William Baerg and W. H. Schwarz. **39**: 1125—1966
Medium- and far-field expressions for velocity potential of circular plane piston. A. O. Williams, Jr. **39**: 1142—1966
Noise covariance and vertical directivity in a deep ocean. W. S. Liggett, Jr., and M. J. Jacobson. **39**: 280—1966
Observations of nonelastic audiofrequency resonances. Edwin R. Fitzgerald. **39**: 870—1966
Parametric solution of the dispersion relation for guided sound propagation in shallow water. Allan D. Pierce. **39**: 1139—1966
Particle waves and audiofrequency modes in crystals. Edwin R. Fitzgerald. **39**: 856—1966
Propagation modes of infrasonic waves in an isothermal atmosphere with constant winds. Allan D. Pierce. **39**: 832—1966
Reflection of a plane acoustic step wave from an elastic spherical membrane. Veljko Milenkovic and S. Raynor. **39**: 556—1966
Reflection of plane viscoelastic waves from plane boundaries. Henry F. Cooper, Jr., and Edward L. Reiss. **39**: 1133—1966
Reflection of sound waves from transition layers. Ravindra N. Gupta. **39**: 255—1966
Sound scattering by elastic cylindrical shells. R. D. Doolittle and H. Überall. **39**: 272—1966
Surface-wave propagation in a continuously stratified medium. F. R. DiNapoli and F. H. Middleton. **39**: 899—1966
Use of sound pulses for a study of circumferential waves. H. Überall, R. D. Doolittle, and J. V. McNicholas. **39**: 564—1966

Letters to the Editor
Circumferential waves on solid cylinders. O. D. Grace and R. R. Goodman. **39**: 173—1966
Numerical results for scattering by a hemisphere on a plane. Richard Barakat and Edward Cohen. **39**: 753—1966

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Abstracts
Acoustic scattering from an interface between media of greatly different density. Kenneth M. Mitzner. **39**: 1260—1966
Creeping-wave description in sound scattering from elastic cylinders. R. D. Doolittle, J. V. McNicholas, and H. Überall. **39**: 1260—1966
Creeping-wave pulses on circular cylinders. J. V. McNicholas and H. Überall. **39**: 1249—1966
Diffraction of waves at the boundary of a shadow zone. A. A. Hudimac. **39**: 1215—1966
Geometrical acoustics' theory of waves from a point source in a temperature- and wind-stratified atmosphere. Allan D. Pierce. **39**: 1261—1966
Phase change associated with total internal reflection at a strong negative gradient. D. J. Parkes. **39**: 1216—1966
Phase spreading in directly transmitted sound-wave packets. Norman W. Lord. **39**: 1216—1966
Preferential excitation of high-order modes in strips. E. L. Fabian. **39**: 1260—1966
Propagation and reception of transient underwater sounds. H. W. Marsh. **39**: 1248—1966
Propagation path of a wave in a variable-speed-of-sound medium obtained by employing Fermat's principle. L. P. Solomon. **39**: 1216—1966
Question of consistency as between the Eulerian viewpoint and the Lagrangian viewpoint. Herbert Kline and P. J. Westervelt. **39**: 1267—1966
Ray transmission in a sound channel with a pseudo-random boundary. A. D. Seifer and M. J. Jacobson. **39**: 1216—1966
Review of the principal phenomena of transient radiation and scattering. M. C. Junger. **39**: 1248—1966
Scattering by an array of cylinders of small surface impedance. T. F. W. Embleton. **39**: 1259—1966
Solution of the waterborne multipath problem through correlation techniques. Earl Duback. **39**: 1216—1966

11.8 Physical Effects of Sound. (See also 12.11.)

Patents
Apparatus for the acoustic treatment of liquids. William K. Fortman. **39**: 228—1966
Sonic spray nozzle. Robert S. Soloff. **39**: 229—1966

11.9 Sounds in the Atmosphere

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Propagation modes of infrasonic waves in an isothermal atmosphere with constant winds. Allan D. Pierce. **39**: 832—1966

Radiative absorption of sound by water vapor in the atmosphere. James B. Calvert, J. W. Coffman, and C. W. Querfeld. **39**: 532—1966

Some effects of airplane operations and the atmosphere on sonic-boom signatures. Domenic J. Maglieri. **39**: S36—1966

Some effects on the nonuniform atmosphere on the propagation of sonic booms. E. J. Kane. **39**: S26—1966

Letters to the Editor

Amplitude variability of explosion waves at long ranges. Jack W. Reed. **39**: 979—1966

Abstracts

Geometrical acoustics' theory of waves from a point source in a temperature- and wind-stratified atmosphere. Allan D. Pierce. **39**: 1261—1966

Infrasound from the epicenter of the 1964 Alaskan earthquake. Richard K. Cook. **39**: 1261—1966

Internal pressure waves and troposphere dynamics. Jessie M. Young and Howard S. Bowman. **39**: 1261—1966

Long-range atmosphere infrasonic propagation. William C. Richie and D. R. Chick. **39**: 1260—1966

Simple algorithm for determining the location of a focus in atmospheric sound propagation. H. L. Fox and Francis M. Wiener. **39**: 1260—1966

12 MECHANICAL VIBRATIONS AND SHOCK. (See also 5., 11., and 16.)

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Observations of nonelastic audiofrequency resonances. Edwin R. Fitzgerald. **39**: 870—1966

Particle waves and audiofrequency modes in crystals. Edwin R. Fitzgerald. **39**: 856—1966

Abstracts

Mechanical impedance and mobility concept. George J. O'Hara. **39**: 1237—1966

Review of mechanical immittance and transmission matrix concepts. S. Rubin. **39**: 1237—1966

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Vibration Theory and Applications. William T. Thomson. (Reviewed by Patrick F. Cunniff.) **39**: 780—1966

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12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, 5.21.)

Letters to the Editor

Compliance of mechanical contacts and its significance for ultrasonic hardness testing and for vibration-amplitude measurements. Claus Kleesattel. **39**: 404—1966

Laser interferometric technique for measuring small-order vibration displacements. Harry Deferrari and Frank Andrews. **39**: 979—1966

12.3i Vibration Isolators, Attenuators, and Dampers. (See also 2.11 and 5.21.)

Papers

Development of a viscoelastic composition having superior vibration-damping capability. George L. Ball, III, and Ival O. Salyer. **39**: 663—1966

Forced vibrations of a two-degree-of-freedom system with combined Coulomb and viscous damping. Gordon C. K. Yeh. **39**: 14—1966

Vibration of cantilever beams to which dynamic absorbers are attached. J. C. Snowdon. **39**: 878—1966

Letters to the Editor

A spring with time-variable stiffness. P. W. Rodgers. **39**: 749—1966

Effect of end constraints on the damping of laminated beams. R. A. DiTaranto and W. Blasingame. **39**: 405—1966

Abstracts

Dissipation associated with gas-pumping in joint structures. Gideon Maidanik and Jaime R. Carbonell. **39**: 1268—1966

Patents

Pneumatic vibration eliminator. Charles Leavell. **39**: 1016—1966

Support for vibratory devices. William C. Elmore. **39**: 792—1966

12.3p Vibration Pickups and Indicators. Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)

Patents

Accelerometer. Charles F. Quirmbach, Jr. **39**: 623—1966

Accelerometer. Allen E. Smoll and Weyman S. Crocker. **39**: 624—1966

Accelerometer. Thomas Wing. **39**: 624—1966

Accelerometers. Eric Arthur Falkner. **39**: 623—1966

Accelerometers. Dexter Robert Plummer. **39**: 623—1966

Angular accelerometer. William L. Tracy, Edgar B. Romberg, and Richard B. Higley. **39**: 623—1966

Apparatus for testing bearings. Stuart N. Matheson. **39**: 623—1966

Magnetic accelerometer. Dain B. Lones and Timothy L. Hanley. **39**: 623—1966

Piezoelectric force controller. Richard Lukso. **39**: 624—1966

Seismic vibration pickup means. Karl F. Frank. **39**: 792—1966

12.3v Vibration Generators. Shake Tables. (See also 5.21.)

Abstracts

Correlation of the dynamic response of a complex plastic model with its prototype. R. L. Bannister. **39**: 1238—1966

Structural and electromechanical interaction in the multiple exciter technique for random vibration testing. Marc R. Trubert. **39**: 1238—1966

12.3z Mechanical-Impedance Measurement. (See also 5.3 and 11.5.)

Abstracts

Mechanical impedance and mobility concept. George J. O'Hara. **39**: 1237—1966

Recent advances in the measurement of structural rotational impedance. Frank W. Desiderati. **39**: 1237—1966

Review of mechanical immittance and transmission matrix concepts. S. Rubin. **39**: 1237—1966

Some measurements of the effect of geometric scale on structural impedance and radiated sound. Fred Schloss and Wayne T. Reader. **39**: 1237—1966

Structural characterization of mechanical-impedance techniques. R. B. Tatge. **39**: 1237—1966

Patents

Mechanical impedance meter. Fred Schloss. **39**: 624—1966

12.5 Shock. (See also 14.2 and 13.10.)

Patents

Impact test machine. George M. Orner. **39**: 624—1966

12.7 Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)

Papers

Axisymmetric, plane-strain dynamic response of a thick orthotropic shell. Jerome M. Klosner and Clive L. Dym. **39**: 1—1966

Coupled thickness shear and flexure displacements in rectangular **AT** quartz plates. W. J. Spencer and R. M. Hunt. **39**: 929—1966

Finite-difference method for the investigation of the vibrations of solids and the evaluation of the equivalent-circuit characteristics of piezoelectric resonators. Part I: General theory and application to contour modes of thin rectangular plates. **39**: 346—1966; Part II: Contour modes of rectangular ceramic plates and their circuit characteristics. **39**: 355—1966. P. Lloyd and M. Redwood.

Forced motion of an encased cylinder of decreasing thickness. Jan D. Achenbach and G. Herrmann. **39**: 1145—1966

Forced vibrations of a two-degree-of-freedom system with combined Coulomb and viscous damping. Gordon C. K. Yeh. **39**: 14—1966

Free vibrations of thin isotropic oblate-spheroidal shells. Leslie E. Penzes and George Burgin. **39**: 8—1966

Frequency equations for wave propagation in an initially stressed circular cylinder. W. T. Chen and T. W. Wright. **39**: 847—1966

Large-amplitude linear vibrations of tensioned strings. John Dimeff, James W. Lane, and Murray S. Gardner. **39**: 849—1966

Method of computation of damped resonance frequencies for a system of equal masses, equal spring constants, and equal viscous-damping coefficients. S. Raynor and E. Frank. **39**: 269—1966

Oscillation of a bar magnetostrictor. James M. Witting. **39**: 741—1966

Plastic deformation in random vibration. Dean Karnopp and Terry D. Scharton. **39**: 1154—1966

Steady-state responses of one-dimensional periodic flexural systems. Eric E. Ungar. **39**: 887—1966

Thermoelastic vibrations of a beam. John P. Jones. **39**: 542—1966

Three-dimensional and shell-theory analysis for axisymmetric vibrations of orthotropic shells. I. Mirsky. **39**: 549—1966

Transient response of thin elastic shells. J. P. Wilkinson. **39**: 895—1966

Transverse vibrations of cantilever bars of variable cross section. J. H. Gaines and E. Volterra. **39**: 674—1966

Uniqueness of mean-square approximate systems. J. L. Bogdanoff. **39**: 261—1966

Vibration of a tight cable containing a turnbuckle. F. Edward Ehlers. **39**: 537—1966

Vibration of cantilever beams to which dynamic absorbers are attached. J. C. Snowdon. **39**: 878—1966

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Effect of end constraints on the damping of laminated beams. R. A. DiTaranto and W. Blasingame. **39**: 405—1966

Effect of external or internal static pressure on the natural frequencies of unstiffened, cross-stiffened, and sandwich cylindrical shells. Joshua E. Greenspon. **39**: 407—1966

Abstracts

Correlation of the dynamic response of a complex plastic model with its prototype. R. L. Bannister. **39**: 1238—1966

Coupled-mode approach to elastic-vibration analysis. Errol P. Eer Nisse. **39**: 1268—1966

Development of nodal patterns in the forced vibration of thin shells of revolution. John G. Goldberg and Dale W. Alspaugh. **39**: 1268—1966

Effect of boundary conditions of flexural vibrations of thin orthogonally stiffened cylindrical shells. Leslie E. Penzes. **39**: 1288—1966

Effect of curvature on response and fatigue resistance of simple panels. J. R. Ballentine. **39**: 1268—1966

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Thermoelastic vibrations of a thick hollow elastic sphere. G. Cinelli. **39**: 1268—1966

12.10 Seismology. Geophysical Prospecting. Seismographs

Patents

Acoustical well fluid logging. Hugh O. Walker, Jr., and Robert J. Loofbourrow. **30**: 795—1966

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Acoustical well logging tool. Thomas H. Holmes and Oswald A. Itria. **39**: 806—1966

Acoustical well logging tool having low acoustical velocity between transducers. Roy P. Mazzagatti, Kerry D. Savage, and Donald J. Dowling. **39**: 796—1966

Acoustic delay member for well logging tools. George H. Pardue. **39**: 803—1966

Acoustic logging system. Warren L. Anderson. **39**: 809—1966
Acoustic logging tools. George H. Pardue. **39**: 798—1966
Acoustic logging tools with acoustic attenuating structure. Edward I. Moser and George H. Pardue. **39**: 803—1966
Acoustic method and apparatus for loosening and/or longitudinally moving stuck objects. Albert G. Bodine, Jr. **39**: 796—1966
Acoustic velocity bore hole logging systems and apparatus. Gerald C. Summers. **39**: 796—1966
Acoustic velocity logging system and computer. Adrian P. Brokaw. **39**: 799—1966
Acoustic well logging. Robert B. Blizard. **39**: 807—1966
Acoustic well logging apparatus. Robert B. Blizard. **39**: 799—1966
Acoustic well logging system. Allen W. Engle, John L. Casey, and Adrian P. Brokaw. **39**: 793—1966
Acoustic well logging transmission system. Carl W. Zimmerman and Adrian P. Brokaw. **39**: 800—1966
Apparatus for controlling a seismic vibrator. William E. N. Doty, Jimmy R. Cole, and Milford R. Lee. **39**: 807—1966
Apparatus for generating and transmitting sonic vibrations. Albert G. Bodine. **39**: 796—1966
Apparatus for plotting seismic data. William L. Roever. **39**: 799—1966
Bore hole transmission in well logging systems. Gerald C. Summers. **39**: 803—1966
Cancellation of secondary seismic reflections. Joseph D. Eisler and Daniel Silverman. **39**: 805—1966
Combining multiple seismic records. Gilbert W. Ehlert, Albert W. Musgrave, Paul E. Nash, and Roderick M. Nugent. **39**: 799—1966
Computing seismic information. John L. Shanks, Duane E. Soland, and Kay N. Burns. **39**: 800—1966
Detection of low signal-to-noise ratio seismic signals. Joe P. Lindsey, Sheldon E. Elliott, and Ralph C. Loring. **39**: 804—1966
Directed acoustic velocity logging. Warren L. Anderson. **39**: 795—1966
Dual seismic surveying system. Booth B. Strange. **39**: 795—1966
Earth logging system. Franklyn K. Levin and Roberto Sarmiento. **39**: 807—1966
Electroacoustical logging while drilling wells. David C. Kalbfell. **39**: 806—1966
Electromagnetic rotary field apparatus for generating and applying gyratory sonic vibrations. Albert G. Bodine, Jr. **39**: 798—1966
Fast acting sensitive pressure switch. Vernon M. Barnes, Jr. **39**: 805—1966
Fluid actuated vibrator. Jean-Pierre Fail, Gerard Grau, and Michel Lavergne. **39**: 810—1966
Fluid driven mechanical oscillator. Albert G. Bodine, Jr. **39**: 803—1966
Force transducer. John A. Dorr. **39**: 625—1966
Frequency spectrum control for seismic signals. Gaylord P. Schwartz and Jesse D. Skelton. **39**: 799—1966
Impact apparatus for generating a sonic impulse employed in seismic geological exploration. Charles C. Williams. **39**: 809—1966
Information retrieval system for logging while drilling. George J. Grossman, Jr. **39**: 809—1966
Internal combustion type seismic wave generator. James H. Dunaway. **39**: 805—1966
Logging tool housing with acoustic delay. Nick A. Schuster. **39**: 803—1966
Low acoustic velocity support member for logging tools. Maurice P. Lebourg. **39**: 803—1966
Magnetostrictive drill string logging device. Robert H. Kolb. **39**: 793—1966
Mechanical spread corrector with variable velocity function. Ralph D. Lynn. **39**: 808—1966
Method and apparatus for generation of seismic waves. Tobias Flatow. **39**: 795—1966
Method and apparatus for plotting seismic data. Roy E. Garten, Jr. **39**: 798—1966
Method and apparatus for seismographic exploration. Carl H. Savit, John T. Brustad, and Joseph Sider. **39**: 793—1966
Method and apparatus for sonic jarring with reciprocating mass oscillator. Albert G. Bodine, Jr. **39**: 797—1966
Method and means for reducing strong, early arrival waves in continuous wave operations. Tom Prickett, Jr., and John P. Woods. **39**: 809—1966
Method for measuring formation porosity, permeability and mud cake thickness in oil well bore holes by sonic pulses. William Liben. **39**: 799—1966
Method for multiple geophone recording in seismic prospecting. Alfred Wolf. **39**: 795—1966
Method for removing echo effects from seismograms. Martinus G. Sirks. **39**: 795—1966
Method of determining shear wave velocities. Oswald A. Itria. **39**: 794—1966
Method of generating seismic patterns. William E. N. Doty. **39**: 796—1966
Method of seismic exploration. Burton McCollum. **39**: 800—1966
Method of seismic prospecting. William E. N. Doty. **39**: 809—1966
Methods and apparatus for seismic section recording. Geothe M. Groenendyke. **39**: 795—1966
Petroleum well treatment by high power acoustic waves to fracture the producing formation. Albert G. Bodine. **39**: 801—1966
Process for combining seismic information. John C. Anderson. **39**: 793—1966
Production of electrical current from oscillatory traces. John P. Woods. **39**: 809—1966
Recoilless seismic source. Robert A. Kirby and Gerald M. Webster. **39**: 810—1966
Recording apparatus for use in making and interpreting seismographic records. Nigel A. Anstey, Raymond E. Green, George C. Baird, Frederick W. Hales, and Victor V. Graf. **39**: 796—1966
Release mechanism for impact seismic impulse generating apparatus. Charles C. Williams. **39**: 803—1966
Seismic exploration. H. C. Johnsen. **39**: 809—1966
Seismic exploration. Gerald M. Webster. **39**: 808—1966
Seismic exploration of water covered areas. William A. Hensley, Jr. **39**: 810—1966
Seismic method of earth exploration. Warren A. Alexander and Robert N. Hart. **39**: 808—1966
Seismic method of prospecting. Joseph F. Mifsud. **39**: 805—1966
Seismic model. Frank G. Boucher. **39**: 797—1966
Seismic prospecting. Robert F. Gregory and Charles W. Bogs. **39**: 807—1966
Seismic prospecting. Burton D. Lee. **39**: 793—1966

Seismic prospecting. Paul J. Naquin, Jr., and Joe P. Lindsey. **39**: 810—1966
Seismic pulse generator. Walter H. Glazier. **39**: 800—1966
Seismic shear-wave prospecting. Charles C. Lash. **39**: 807—1966
Seismic signal display system. Roscoe W. Mitchell, Jr. **39**: 804—1966
Seismic sound source. William L. Roever. **39**: 799—1966
Seismic surveying system for water-covered areas. Noyes D. Smith, Jr. **39**: 801—1966
Seismic surveying utilizing models. Daniel Silverman. **39**: 797—1966
Seismic transducer and cushioning device therefor. Marvin G. Bays, Graydon L. Brown, and Henry A. Wakefield. **39**: 795—1966
Seismic transducer construction. Frank Clynch and Delbert W. Fair. **39**: 798—1966
Seismic velocity logging of low-velocity well formations. Ralph L. Cordell and Julian F. Evans. **39**: 794—1966
Shear wave transducer. Delbert W. Fair. **39**: 798—1966
Single conductor acoustic well logging system. Gerald C. Summers. **39**: 810 (2 patents)—1966
Single frequency prospecting. Virgil R. Johnson. **39**: 793—1966
Sonic earth boring drill with elastic fluid resonator. Albert G. Bodine. **39**: 798—1966
Sonic logging in casing. Leman M. Holley. **39**: 798—1966
Sonic pile driver. Albert G. Bodine, Jr. **39**: 802—1966
Sonic pile driver. Willard B. Goodman. **39**: 805—1966
Sonic pump impeller. Albert G. Bodine. **39**: 803—1966
Sonic tool for ocean floor coring. Albert G. Bodine, Jr. **39**: 804—1966
Sonic wave system for planting utility poles in the ground. Albert G. Bodine, Jr. **39**: 806—1966
Suspension and isolation system for seismic shear wave transducers. Frank Clynch. **39**: 806—1966
System for analyzing seismic signals. James C. Earthman. **39**: 808—1966
System for anchoring and transporting a seismic vibrator. Frank Clynch. **39**: 793—1966
Trigger generator for acoustic well logging systems. Adrian P. Brokaw. **39**: 793—1966
Tubing coupling for sonic pump. Albert G. Bodine, Jr. **39**: 794—1966
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Variable oscillation period seismometers. Patrick L. Willmore and David V. Connell. **39**: 806—1966
Vibrating systems and means for varying the frequency of vibration. Ivor S. Sacks. **39**: 793—1966
Vibrator controlling system. Alain Castanet and Michel Lavergne. **39**: 808—1966
Voltage generating seismic vibratory pickup device. Ralph A. Campbell, Theodore Ongaro, and Glen H. Thomas. **39**: 797—1966
Well geophone. John H. Woodworth. **39**: 801—1966
Well logger. Charles L. Hubbard, Charles J. Charske, and Donald H. Britton. **39**: 799—1966
Well logging. Charles B. Vogel. **39**: 800 (2 patents)—1966

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Assessment of sonic-boom problem for future air-transport vehicles. Donald D. Baals and Willard E. Foss, Jr. **39**: S73—1966
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Forced motions of an encased cylinder of decreasing thickness. Jan D. Achenbach and G. Herrmann. **39**: 1145—1966
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Plastic deformation in random vibration. Dean Karnopp and Terry D. Scharton. **39**: 1154—1966

Abstracts

Effect of curvature on response and fatigue resistance of simple panels. J. R. Ballentine. **39**: 1268—1966
Structural characterization of mechanical-impedance techniques. R. B. Tatge. **39**: 1237—1966

Patents

Apparatus and method applying vibratory energy. Charles A. Boyd. **39**: 625—1966

12.12 Random Vibration. (Started 1965.)

Papers

First-occurrence time of high-level crossings in a continuous random process. James R. Rice and Ferdinand P. Beer. **39**: 323—1966
Plastic deformation in random vibration. Dean Karnopp and Terry D. Scharton. **39**: 1154—1966

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Reply to "Comment on 'Vibrational-energy transmission in a three-element structure'" [D. E. Newland, J. Acoust. Soc. Am. **39**, 755(L) (1966)]. Richard H. Lyon and Terry D. Scharton. **39**: 755—1966

13 UNDERWATER SOUND

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Book Reviews

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NOL to explore sounds of the sea in northern waters. **39**: 772—1966

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13.2 Propagation of Sound in Water. Attenuation. Fluctuation

Papers

Intensity–decay laws for sound propagation in shallow water of variable depth. R. N. Denham. **39**: 1170—1966

Long-range deep-sea attenuation measurement. R. J. Urick. **39**: 904—1966

Noise covariance and vertical directivity in a deep ocean. W. S. Liggett, Jr., and M. J. Jacobson. **39**: 280—1966

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Underwater-sound reflection from a pressure-release sinusoidal surface. G. R. Barnard, C. W. Horton, M. K. Miller, and F. R. Spitznogle. **39**: 1162—1966

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Masking of surface reverberation by volume reverberation. Robert L. Shaffer. **39**: 408—1966

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Near field of a dipole for measurements in shallow lakes or tanks. Robert J. Bobber. **39**: 1222—1966

Phase change associated with total internal reflection at a strong negative gradient. D. J. Parkes. **39**: 1216—1966

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Papers catalogues alphabetically by title those JOURNAL papers covered by the specific area of the decimal heading under which these are listed. **Abstracts** listed alphabetically the titles of papers presented at meetings. **Subtitles** includes some subtitles from Papers whose titles do not fully describe all the areas covered therein; specially "devised" subtitles when such did not appear in the Paper itself; and some Figure captions. Thus, while the Subtitles portion of the Index is informal, it is hoped that it will increase the probability of finding the desired information quickly. **Patents** lists alphabetically the titles of all Patents as they have appeared in the JOURNAL.

References on most subjects can be located immediately by a logical use of the Classification of Subjects. In the case where the reference sought is of an unusual character, where there is uncertainty as to the specific area under which it might have been classified, it can usually be located quite quickly by the process of eliminating those sections and subjects under which it is quite improbable that the reference might have been listed. Very often, items have been crossreferenced. Obviously, the author or inventor indexes are more convenient than the Subject Index when one knows the name of the author of the paper or the inventor of the patent of interest.

The reader, or his librarian, should go over the list of Errata (Section 0.1) and either make the indicated corrections in the original papers in the JOURNAL or enter a note alongside the title of the original paper itself: "See Erratum, Vol. *XX*, p. *xxx*.

The *References to Contemporary Papers on Acoustics* are identified in each issue of the JOURNAL where they appear by the same decimal numbers listed in the Classification of Subjects, and may be consulted for references in other journals than our own. In Volume 40, these references can be found beginning on pages 268, 743, and 000.

Classification of Subjects • Effective 1 January 1965

This classification supersedes all previous ones; there have been major changes and additions.

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Bode, Harold E. W. 3,154,997. Reed with curved taper. **40**: 302—1966

Bonham, Don L. 3,146,292. Electrical vibrato and tremolo devices. **40**: 300—1966

—— 3,160,695. Electrical music system. **40**: 303—1966

Bos, Jules, Simon Duinker, and Adreas Leopoldus Stuijts. 3,177,475. Magnetic transducer with reduced pore volume adjacent the pole tips. **40**: 525—1966

Boucheron, Pierre H., Jr. 3,239,799. Sonar directional beam focusing system. **40**: 772—1966

Brand, John R. 3,151,203. Electronic organ stop switching. **40**: 302—1966

Brette, Yves-Jean Francois and Jacques Pierre Léon Droux. 3,185,971. Double magnetic head. **40**: 527—1966

Brooks, Harvey and Arthur N. Butz, Jr. 3,229,657. Echo ranging torpedo. **40**: 540—1966

Brown, James H. and Thomas A. Priscilla. 3,263,206. Method for determining time-averaged depth. **40**: 1583—1966

Brown, James R., Jr. (see Horan, John J.). **40**: 542—1966

Bryson, James R. and Robert R. Cassilly. 3,187,834. Muffler having spaced frusto-conical baffle plates with perforated center tube and attached cooling fins. **40**: 531—1966

Buell, Roy D., Jr., and Ben B. Peterson. 3,259,103. Ultrasonic interrupter. **40**: 1579—1966

Buettner, Gerhard (see Sapara, Franz). **40**: 768—1966

Bunker, David D. 3,251,257. Stringed instrument of guitar type. **40**: 1581—1966

Burns, James Ormston and Gordon Spencer Chandler. 3,249,677. Pick-ups for guitars and coupling circuits therefor. **40**: 1580—1966

Burroughs, Louis R. 3,236,328. Acoustical device with protective screen. **40**: 519—1966

Butz, Arthur N., Jr. (see Brooks, Harvey). **40**: 540—1966

C

Camillucci, Edward R. 3,173,329. Piano key actions. **40**: 297—1966

Camp, Leon W. 3,246,288. Discontinuous hollow cylindrical transducer. **40**: 1583—1966

—— 3,262,094. Discontinuous hollow cylindrical transducer. **40**: 1584—1966

Campbell, Donald J. 3,247,309. Semi-automatic rhythm accompaniment. **40**: 1581—1966

Campbell, Richard H., Jr. 3,112,353. Percussion circuit for electronic organs. **40**: 299—1966
—— **and George H. Hadden.** 3,172,939. Electronic organ with punch card registration selection system. **40**: 304—1966
Camras, Marvin. 3,165,580. Reproducing transducer for moving dielectric record. **40**: 522—1966
—— 3,185,775. Oriented tape. **40**: 526—1966
Canzoneri, Richard M. 3,241,375. Transducer. **40**: 946—1966
Carlin, Benson. 3,256,733. Ultrasonic pulse-echo apparatus for internal exploration. **40**: 1585—1966
Carter, Arthur L. and Jack A. Van Ingen. 3,239,998. Ultrasonic degassing of multiple emulsions in a vertical unit. **40**: 1234—1966
Cassilly, Robert R. (see Bryson, James R.). **40**: 531—1966
Chandler, Gordon Spencer (see Burns, James Ormston). **40**: 1580—1966
Chapman, Dave. 3,161,258. Sound insulating material and method of making the same. **40**: 1578—1966
—— 3,165,165. Sound insulating building structure with movable partition. **40**: 1578—1966
—— 3,231,042. Foldable sound insulating material and partition. **40**: 1578—1966
Chelminski, Stephen V. 3,249,177. Acoustic wave impulse generator repeater. **40**: 1236—1966
Chervenak, John. 3,230,502. Single air gap underwater transducer array. **40**: 542—1966
Church, Peter K. 3,238,479. Transducer. **40**: 529—1966
Ciavaglia, Rodolph J. 3,258,737. Silent underwater beacon. **40**: 1582—1966
Clark, Melville, Jr. 3,109,047. Intensity rate of change control for musical instruments. **40**: 299—1966
—— 3,217,080. Electroacoustical system. **40**: 768—1966
Clynes, Manfred E. 3,238,767. Ultrasonic pulse-echo system for internal exploration. **40**: 538—1966
Cohen, Abraham B. 3,236,958. Loudspeaker system. **40**: 518—1966
Cole, Harry G. 3,248,991. Tremolo device for stringed instruments. **40**: 1580—1966
Cole, John N. and Henning E. Von Gierke. 3,072,094. Acoustic siren for generating wide band noise with improved efficiency. **40**: 304—1966
Coles, Donald K. 3,141,371. Keyboard-type musical instrument. **40**: 300—1966
Comleigh, Ralph G. and Frank A. Paulus. 3,185,970. Tape apparatus. **40**: 527—1966
Compo, Robert W. 3,244,254. Combination exhaust conduit and muffler. **40**: 537—1966
Conaghan, William U. 3,233,361. Sound producing toy wheel. **40**: 291—1966
Corey, Charles S. (see Andersen, Clifford W.). **40**: 295—1966
Cottell, Eric C. and John E. Goodman. Re. 25,324. Apparatus for the mechanical production of acoustic vibrations for use in emulsification, dispersion or like process. **40**: 305—1966
Cowan, John V. 3,257,843. Ultrasonic inspection apparatus. **40**: 946—1966
Cox, William H. 3,237,152. Pressure compensated hydrophone with constant stiffness. **40**: 543—1966
Cragg, William D. 3,247,927. Electro-acoustic transducers. **40**: 1579—1966
Crownover, Joseph W. 3,226,490. Piezoelectric phonograph pickup. **40**: 1233—1966
Currier, Robert C. 3,230,815. Musical instrument. **40**: 298—1966

D

Deasey, William (see London, Michael J.). **40**: 300—1966
del Giudice, Henry-Anthony and Peter N. Wood. 3,235,835. Underwater communicator. **40**: 529—1966
De Mire, Haig A. 3,164,052. Adjustable support for wind instruments. **40**: 294—1966
Deremer, Floyd E. 3,219,142. Method and apparatus for attenuating sound waves in gas streams. **40**: 534—1966
Dereux, Jean Adolphe. 3,114,789. Audio signal generators and their method of manufacture. **40**: 299—1966
Dersch, William C. 3,166,640. Intelligence conversion system. **40**: 305—1966
Desmares, Peter C. 3,253,674. Ceramic microphone. **40**: 1579—1966
Devine, Robert F. (see Plesset, Milton S.). **40**: 306—1966
Dickinson, Ben Wade Oakes, III. 3,250,120. Method and apparatus for determining flaw locations. **40**: 771—1966
Doelitzsch, Eduart R. 3,213,209. Loudspeaker. **40**: 518—1966
Douglas, George R., John H. Thompson, and Robert H. Whittaker. 3,263,208. Pressure compensated transducer. **40**: 1584—1966
Droux, Jacques Pierre Léon (see Brette, Yves-Jean Francois). **40**: 527—1966
Duinker, Simon (see Bos, Jules). **40**: 525—1966

E

Easton, Earl R. 3,205,306. Auto radio speaker units for receiving and reproducing sound from drive-in theaters and the like. **40**: 292—1966
Eaton, Arthur. 3,243,525. Hearing intensifying and directing apparatus. **40**: 768—1966
Eckel, Oliver C. 3,146,498. Sound absorbing device having flange guides. **40**: 944—1966
Edgerton, Harold E. (see Hayward, Gary). **40**: 541—1966
Eichler, James F. 3,240,882. Permanent magnet type loudspeakers. **40**: 519—1966
Eisner, Edward. 3,252,335. Torsional wave, Fourier type, mechanical amplitude transformer. **40**: 1235—1966
—— 3,252,336. Fourier type mechanical amplitude transformers. **40**: 1236—1966
Elbrecht, Donald W. 3,110,211. Electronic organ construction. **40**: 299—1966
Eldridge, Donald F. 3,188,399. Magnetic transducing assembly. **40**: 527—1966
Elliot, Jack, Jr., and Jack W. Holloway. 3,230,503. Transducer. **40**: 542—1966
Elston, Alvin W. and Gordon A. Vincent. 3,127,527. Control apparatus. **40**: 1236—1966
—— **and Gordon A. Vincent.** 3,241,099. Pressure compensated transducer. **40**: 1585—1966
Elwell, Charles A. 3,234,687. Doll having sound reproducing device. **40**: 519—1966
Engel, Rudolf and Horst Redlich. 3,230,318. Transducer. **40**: 529—1966
Epstein, Barry M. 3,207,847. Remotely controlled sound system. **40**: 519—1966
Evangelista, Vincent. 3,153,304. Acoustical suspended ceiling. **40**: 1231—1966
Evans, Dwight J. 3,242,723. Ultrasonic transducer. **40**: 1235—1966
Evans, Francis C. (see McDonough, Vincent T.). **40**: 306—1966

F

Faulkner, Ernest D. 3,217,829. Radio speaker attachment. **40**: 518—1966
Feid, Jack T. 3,151,700. Film faced acoustical body and method of making same. **40**: 1231—1966

Fender, Clarence L. 3,236,930. Electromagnetic pickup for electrical musical instruments. **40**: 530—1966
—— 3,241,218. Guitar incorporating inertial vibrato device. **40**: 1234—1966
Finger, Joseph S. 3,147,820. Acoustical panel unit with porous resinous facing. **40**: 943—1966
Flynn, Douglas W. 3,243,010. Muffler with internal passages formed in mesh-like fiber-filled cage. **40**: 537—1966
Fortman, William K. 3,070,313. Apparatus for the acoustic treatment of liquids. **40**: 305—1966
Fouqué, Martin. 3,214,519. Reproducing system. **40**: 292—1966
Fox, Charles R. 3,225,860. Speaker assembly. **40**: 1232—1966
Freeman, Ernest C. and Robert W. Freeman. 3,239,229. Doll with phonograph. **40**: 291—1966
Freeman, Robert W. (see Freeman, Ernest C.). **40**: 291—1966
Frei, Ephraim Heinrich (see Gamzon, Robert R.). **40**: 518—1966
Freis, Frederick M. 3,231,853. Subaqueous audio-sound transmitter. **40**: 543—1966
French, Walter K. 3,209,074. System for multiple output of spoken messages. **40**: 945—1966
Fry, William J. 3,233,450. Acoustic flaw detection system. **40**: 538—1966

G

Gabor, Dennis. 3,175,049. Magnetic scanning head. **40**: 524—1966
Gamzon, Robert R. and Ephraim Heinrich Frei. 3,209,084. Electro-acoustical transducer. **40**: 518—1966
Gardner, Mark B. (see Barney, Harold L.). **40**: 1231—1966
Gerry, Martin E. 3,251,263. Sound synchronized slide projector. **40**: 1579—1966
Gerteis, Karl M. 3,193,193. Compressor muffler construction and method for muffling compressor discharge gases. **40**: 531—1966
Giannini, Gabriel M. and Delbert G. Van Ornum. 3,229,098. Light-beam microphone and method. **40**: 519—1966
Giannotti, Hugo V. 3,235,001. Silencer and heat exchanger device. **40**: 537—1966
Gibbs, Thomas B., William H. Krug, and James L. Marshall. 3,150,228. Electronic musical instrument. **40**: 301—1966
Glantz, Alvin (see Pascucci, Vito). **40**: 294—1966
Glasgal, Ralph. 3,170,991. System for stereo separation radio control, elimination of cross-talk and the like. **40**: 1232—1966
Glass, Marvin I. and Arthur E. Neumann. 3,247,748. Toy. **40**: 1581—1966
Goble, Ralph W. 3,254,424. Apparatus for drying and treating hair or other fibers via ultrasonics. **40**: 945—1966
Goeghegan, Terrence J. 3,249,900. Adjustable ultrasonic delay line with input and output transducer mounted on sliding block. **40**: 517—1966
Goldberg, Abraham A. (see Bachman, William S.). **40**: 944—1966
Golik, Edwin R. 3,222,455. Aural Stereophonic balance indicator. **40**: 1233—1966
Goodman, John E. (see Cottell, Eric C.). **40**: 305—1966
Gordon, George A. D. 3,247,709. Ultrasonic test apparatus for producing cross sections of solid bodies. **40**: 539—1966
Graboski, Edward T. 3,266,300. Apparatus for the ultrasonic testing of wheels. **40**: 1581—1966
Greene, David C. (see Kendig, Paul M.). **40**: 947—1966
Greenly, Robert B. 3,206,557. Random access talking machine with intensity modulated film. **40**: 945—1966
Guenther, Roman. 3,160,051. Pipe organ action. **40**: 294—1966
Gustafsson, Bengt Gunnar. 3,249,911. Method and device for determining the position of sound sources in water. **40**: 1582—1966
Gutbier, Ernst A. 3,266,136. Mass soldering apparatus and method using vibratory energy. **40**: 1581—1966
Gutter, Richard M. (see Nightingale, Harold C.). **40**: 530—1966

H

Hadden, George H. (see Campbell, Richard H., Jr.). **40**: 304—1966
Handa, Moriji (see Uemura, Saburo). **40**: 521—1966
Hanert, John M. 3,109,878. Percussion tone monophonic electrical musical instrument. **40**: 299—1966
—— 3,116,358. Expression pedal control system providing reverberation and having latch means. **40**: 299—1966
Hardy, Maurice E. 3,185,401. Tape recorder. **40**: 526—1966
Harris, Jack R. and Clifford M. Rigsbee. 3,229,246. Methods and apparatus for producing sound energy in water. **40**: 542—1966
—— **and Clifford M. Rigsbee.** 3,229,247. Single-circuit proportionator method and apparatus for sound energy. **40**: 542—1966
—— **and Clifford M. Rigsbee.** 3,229,248. Double circuit production of sound energy in water. **40**: 542—1966
Harris, Ronald R. (see Keller, Fred C.). **40**: 943—1966
Harris, Wilbur T. 3,233,213. Transducer. **40**: 543—1966
Harrison, Stevens H. 3,168,619. Two-way audio communication. **40**: 1233—1966
Hauser, Fred. 3,176,083. Recording and reproducing machine. **40**: 524—1966
Haviland, Lyman J. 3,099,930. Keyboard construction for electric musical instrument. **40**: 298—1966
Hayward, Gary and Harold E. Edgerton. 3,227,996. Sound-producing system and apparatus. **40**: 541—1966
Hellund, Emil J. 3,230,506. Pressure pulsation generator. **40**: 946—1966
Henry, Elliott A. 3,257,637. High scan rate ultrasonic inspection system. **40**: 946—1966
—— 3,262,306. Ultrasonic testing system. **40**: 946—1966
Hepler, Cloyse R. 3,240,098. Device for tuning and tensioning stringed musical instruments. **40**: 945—1966
Heppner, Elmore A. 3,234,339. Speaker. **40**: 518—1966
Hertz, Carl Hellmuth and Sven Olofsson. 3,251,219. Transceiving ultrasonic impulses in medical diagnostics. **40**: 1236—1966
Hinman, Dorr J. 3,247,330. Hearing aid structure. **40**: 768—1966
Holloway, Jack W. (see Elliot, Jack, Jr.). **40**: 542—1966
Horan, John J., James R. Brown, Jr., and Maurice F. Pressler. 3,230,504. Open hemispherical transducers. **40**: 542—1966
Horsley, Caperton B. 3,251,576. Sonic refining apparatus. **40**: 1234—1966
Horton, Billy M. 3,122,165. Fluid-operated system. **40**: 944—1966
—— 3,237,712. Fluid-operated acoustic device. **40**: 944—1966
Hoshino, Yasunshi, Mamoru Namikawa, and Shigezo Tochihara. 2,986,609. Apparatus of synchronous recording on a number of magnetic recording sheets. **40**: 521—1966
Hoshinomiya, Nobumitsu. 3,160,845. Tonality controller for electronic organ. **40**: 303—1966
Howatt, Glenn N. 3,255,431. Hydrophone. **40**: 1583—1966
Huggins, Donald N. (see Young, James J.). **40**: 1578—1966

Hughes, Nathaniel. 3,230,923. Sonic pressure wave generator. **40**: 538—1966
—— 3,230,924. Sonic pressure wave generator. **40**: 538—1966
—— 3,232,267. Sonic pressure wave generator. **40**: 538—1966
Hull, Charles E. and Oliver Jespersen. 3,244,791. Electrical stringed instrument. **40**: 1580—1966
Hummel, Harold G. 3,156,785. Tape editing aid. **40**: 522—1966
Hunter, Lloyd P. 3,251,009. Semiconductor ultrasonic signal-delay apparatus utilizing integral P–N junctions as electromechanical transducers. **40**: 1578—1966
Hunter, Stanley (see Round, Henry Joseph). **40**: 772—1966
Hurdle, Burton G. and Robert J. Mackey, Jr. 3,229,245. Echo ranging display system. **40**: 539—1966
Hurley, Thomas P. and Noel C. Sears. 3,258,739. Hydrophones. **40**: 1584—1966
—— **and Noel C. Sears.** 3,258,740. Hydrophones. **40**: 1584—1966
Hutchins, Ralph E. 3,233,695. Speaker enclosure. **40**: 518—1966

I

Ikeda, Minoru. 3,167,315. Musical instrument. **40**: 303—1966
Irons, Dale M. 3,240,099. Sound responsive light system. **40**: 944—1966
Irwin, Benjamin H. (see Ludlow, Edmund). **40**: 531—1966
Ishimura, Kazukiyo. 3,157,247. Sound producing system. **40**: 302—1966
Itoh, Kiyohiko (see Mabuchi, Shigeaki). **40**: 771—1966

J

Jack, William A. and George W. Landgraf. 3,160,226. Sound absorber. **40**: 1577—1966
Jacke, Stanley E. 3,229,448. Ultrasonic degasifying device. **40**: 538—1966
Jacobs, Eric William and Leonard John Rigbey. 2,986,607. Adjustable support means for a magnetic recording or reproducing head. **40**: 520—1966
Jansen, Willem Johan Maria. 3,238,006. Sound film reproducing installation comprising two projectors each having an optical sound head and a magnetic sound head. **40**: 519—1966
Jaquith, Douglas. 3,240,097. Peg device for stringed instruments. **40**: 944—1966
Jeffrey, Louis Robert, Jr. 3,073,578. Ultrasonic cleaning machine. **40**: 306—1966
Jespersen, Oliver (see Hull, Charles E.). **40**: 1580—1966
Jettinghoff, Paul F. 3,209,858. Muffler having depressed channel forming tuning passages. **40**: 533—1966
—— 3,220,507. Three-piece tri-flow muffler. **40**: 534—1966
Jira, Thomas J. 3,230,816. Device for tuning stringed instruments. **40**: 298—1966
Johnson, Edward M. 3,148,248. Electromagnetic transducer supporting assembly. **40**: 522—1966
Johnson, Roger P. (see Young, James J.). **40**: 1578—1966
Joy, Ivan L. 3,251,220. Apparatus for ultrasonic flaw testing. **40**: 772—1966
Junger, Miguel C. and Klaus Kleinschmidt. 3,262,093. Pressure compensated sonic transducer. **40**: 1584—1966

K

Kaiser, Arthur (see Bachman, William S.). **40**: 944—1966
Karmann, Richard and Manfred Zerbst. 3,236,957. Device for converting mechanical into electrical oscillations. **40**: 529—1966
Keays, Stanley K. (see Smyth, Henry L. R.). **40**: 1582—1966
Keller, Fred C. and Ronald R. Harris. 3,149,693. Acoustical surfaces. **40**: 943—1966
Kelly, Thomas N. 3,177,971. Marine type muffler. **40**: 1234—1966
Kendig, Paul M. and David C. Greene. 3,243,767. Electroacoustic transducer for detection of low level acoustic signals over a broad frequency range. **40**: 947—1966
Kern, Donald R. 3,161,714. Legato percussion circuit. **40**: 303—1966
Kerns, Karl K. (see Lentz, Ervin C.). **40**: 533—1966
Kessenich, Carl A. 3,196,211. Speaker arrangement. **40**: 518—1966
King, William H., Jr. 3,226,291. Piezo crystal fluid analyzer. **40**: 1579—1966
Klann, Paul A. 3,175,447. Pedal board for organs. **40**: 294—1966
—— 3,175,451. Double touch key for musical instruments. **40**: 295—1966
Kleinig, Frank Leonard. 3,221,836. Muffler article and method of casting same. **40**: 535—1966
Kleinschmidt, Klaus (see Junger, Miguel C.). **40**: 1584—1966
Klemp, Han-Joachim and Horst Redlich. 3,236,955. Stereophonic electrodynamic transducer. **40**: 520—1966
Koren, Heiman W. and Ignatius Michalko. 3,169,303. Method of making magnetic record transducing heads. **40**: 523—1966
Koskie, Wallace W., Donald K. Sampson, and Byron D. Smith. 3,170,149. Transducer. **40**: 524—1966
Krauer, Hans-Ulrich, Georg Vogel, and Rudolf Bayer. 3,098,122. Circuit arrangement for an intercom system with alternative operation. **40**: 528—1966
Kravka, Miloš. 3,175,449. Brass wind instrument. **40**: 294—1966
Kritz, Jack. 3,231,852. Combination radio receiver and underwater Doppler acoustical device. **40**: 540—1966
—— **and Seymour D. Lerner.** 3,257,638. Doppler navigation system. **40**: 1582—1966
Krug, William H. (see Gibbs, Thomas B.). **40**: 301—1966
Kuhrt, Friedrich and Gustav Stark. 2,987,581. Slotted Hall effect transducer. **40**: 521—1966
Kuwayama, Zennosuke. 3,194,340. Speaker enclosure system. **40**: 517—1966

L

Laa, Friedrich and Friedrich Louzil. 3,169,721. Magazine for a magnetic tape recorder-reproducer. **40**: 523—1966
Lambeir, Silvaan René and Modest Charline Vereycken. 3,191,102. Method and apparatus for erasing recordings on magnetic tape and film. **40**: 528—1966
Landgraf, George W. (see Jack, William A.). **40**: 1577—1966
Lang, Robert J. and Jerrold D. Atlas. 3,067,948. Sonic atomizer for liquids. **40**: 305—1966
Laube, William C., Jr. 3,159,713. Artificial reverberation device. **40**: 302—1966
Lawrence, John A. 3,182,298. Magnetic-recording head switch. **40**: 525—1966
Lee, Robert and Harry D. Sowers. 3,227,240. Air mingling sound suppressor for jet engine. **40**: 535—1966
Lemke, James U. 3,182,300. Magnetic tape transducer. **40**: 526—1966
Lentz, Ervin C. and Karl K. Kerns. 3,209,859. Two-piece muffler comprising external shell and concentric deformed inner tube. **40**: 533—1966
Lerner, Seymour D. (see Kritz, Jack). **40**: 1582—1966
Leslie, Donald J. 3,100,024. Multiple sound channel tremolo device. **40**: 298—1966

—— 3,146,291. Pitch broadening apparatus for musical instruments having electronic tone generators. **40**: 300—1966
—— 3,174,579. Acoustic apparatus for producing tremolo and vibrato. **40**: 304—1966
Leslie, John C. L. 3,237,713. Acoustical chamber. **40**: 529—1966
Lewis, Howard R. and Stephen N. Surmeian. 3,230,403. Prestressed ceramic transducer. **40**: 529—1966
Lo Duca, Thomas S. 3,165,965. Brass roller action key pivot mounting. **40**: 304—1966
London, Michael J. and William Deasey. 3,144,092. Sound system. **40**: 300—1966
Louzil, Friedrich. 3,179,417. Attachment for magnetic recorder tape. **40**: 525—1966
—— (see Laa, Friedrich). **40**: 523—1966
Luckert, Karl Wilhelm. 3,244,053. Stringed musical instrument. **40**: 1580—1966
Ludlow, Edmund and Benjamin H. Irwin. Re. 25,909. Sound attenuating gas conduit. **40**: 531—1966

M

Mabuchi, Shigeaki and Kiyohiko Itoh. 3,219,745. Electronic musical instruments. **40**: 771—1966
Mackey, Robert J., Jr. (see Hurdle, Burton G.). **40**: 539—1966
Madison, Theodore C. 3,263,209. Pressure compensated hydrophone. **40**: 1585—1966
Maes, Guy. 3,229,311. Radiosonobuoys. **40**: 540—1966
Makow, David M. (see Smyth, Henry L. R.). **40**: 1582—1966
Marchand, Gaston A. and Donald W. Powers. Re. 26,030. Dynamic transducer. **40**: 1579—1966
Maropis, Nicholas. 3,264,863. Method and apparatus for detecting incipient boiling of a liquid. **40**: 1585—1966
Marshall, James L. (see Gibbs, Thomas B.). **40**: 301—1966
Martelli, Luigi and Carlos Reinberg. 3,210,723. Electronic self-contained apparatus for sound or voice communication. **40**: 1236—1966
Martin, Daniel W. 3,215,767. Chorus effects in electronic organ. **40**: 770—1966
Martin, Erwin. 3,246,721. Frequency response of an electroacoustic transducer. **40**: 1579—1966
Martinez, Louis. 3,161,713. Magnetic tone generator for musical instruments. **40**: 303—1966
Massa, Frank. 3,225,326. Combination tubular baffle with electroacoustic transducer. **40**: 541—1966
Mattis, Edward M. 3,190,969. Method for stereophonic rerecording. **40**: 519—1966
Mattoon, Deo R. 3,227,241. Ceramic mufflers. **40**: 535—1966
—— 3,227,242. Ceramic muffler with resilient sealing gaskets. **40**: 535—1966
Maurer, John A. 3,243,522. Recorder for optically recording a sound record area. **40**: 520—1966
Maxey, Alexander R. 3,149,207. Tape transport. **40**: 522—1966
May, John E., Jr., and John H. Rowen. 3,251,026. Acoustical system. **40**: 1578—1966
McDonough, Vincent T., Howard Pearson, and Francis C. Evans. 3,074,053. Electrical system and method for protecting premises subject to varying ambient conditions. **40**: 306—1966
McGaughey, William C. 3,239,801. Liquid lens ultrasonic beam controlling device. **40**: 538—1966
—— 3,269,172. Apparatus for measuring particles in liquids. **40**: 1582—1966
McInnish, Paul J. 3,068,370. Ultrasonic probe. **40**: 305—1966
McNulty, James F. 3,260,105. Ultrasonic test apparatus and method. **40**: 1235—1966
Mee, Charles D. 3,177,304. Split channel recording technique and apparatus therefor. **40**: 525—1966
Meinel, Hermann Friedrich. 3,241,417. Musical instrument. **40**: 1233—1966
Meinema, Herbert E. 3,160,694. Percussion circuit. **40**: 302—1966
Mellen, Robert H. 3,246,289. Resonant underwater hydrodynamic acoustic projector. **40**: 1585—1966
Mercurius, Randolph P. 3,233,696. Acoustic tone equalizer. **40**: 518—1966
Miccio, Arthur L. 3,141,369. Hand support for a horn. **40**: 294—1966
Michael, Paul L. 3,254,528. Transducer mount. **40**: 1583—1966
—— (see Reid, J. M.). **40**: 1582—1966
Michalko, Ignatius (see Koren, Heiman W.). **40**: 523—1966
Miessner, Benjamin F. 3,215,765. Fixed-free-reed electronic piano with improved interpartial-ratio integralizing arrangements. **40**: 770—1966
—— 3,215,766. Fixed-free-reed electronic piano with electrodynamic translating means controlling the odd and even partial-frequency components. **40**: 770—1966
Mizrahi, Eli. 3,219,140. Rotatable loudspeaker. **40**: 518—1966
Montenare, Anthony. 3,236,140. Reed for wind instruments. **40**: 531—1966
Morgan, Willard L. (see Slayter, Games). **40**: 536—1966
Moseley, Semie A. 3,237,502. Stringed musical instrument. **40**: 530—1966
Muller, Clarence A. (see Bargetzi, Fred H.). **40**: 524—1966
Müller, Willy. 3,179,418. Magnetic sound recording and reproducing dictation appliance. **40**: 525—1966
Munch, Walter, Jr. (see Bissonette, Alfred J.). **40**: 304—1966
Murray, Ernest and Kathleen Murray. 3,219,144. Valvelike silencer on end of exhaust pipe. **40**: 534—1966
Murray, Kathleen (see Murray, Ernest). **40**: 534—1966

N

Naiman, Mark L. 2,987,582. Multichannel magnetic erasing heads. **40**: 521—1966
—— (see Oster, Stanley M.). **40**: 523—1966
Nakada, Akira. 3,217,081. Sound volume controller for electronic musical instruments. **40**: 771—1966
Namikawa, Mamoru (see Hoshino, Yasushi). **40**: 521—1966
Namon, Richard. 3,239,029. Speaker design. **40**: 518—1966
Neff, Gene M. 3,075,101. Vibratory motor for therapeutic device. **40**: 293—1966
Nesh, Florence. 3,261,706. Method of fabricating magnetic tape. **40**: 1233—1966
Neumann, Arthur E. (see Glass, Marvin I.). **40**: 1581—1966
Neustadt, Herbert M. 3,166,622. Breath controlled electronic musical instrument. **40**: 303—1966
Nightingale, Harold C. and Richard M. Gutter. 3,230,402. Piezoelectric crystal. **40**: 530—1966
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Patents

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Detection performance and two parameters of the auditory stimulus. Thomas L. Nichols and Lloyd A. Jeffress. **40**: 1250—1966

Olivocochlear bundle: effects upon noise-masked N_1 responses. James H. Dewson, III. **40**: 1275—1966

Some relations of the V potential to loudness and to masking. Hallowell Davis, C. Bowers, and S. K. Hirsh. **40**: 1264—1966

Subharmonic squelch effect. Peter J. Dallos. **40**: 1264—1966

4.8 Phase Effects. (See also 4.3.)

Papers

Binaural unmasking of complex signals. J. L. Flanagan and B. J. Watson. **40**: 456—1966

Further results on binaural unmasking and the EC model. Lawrence R. Rabiner, C. L. Laurence, and N. I. Durlach. **40**: 62—1966

Lateralization of a weak signal presented with correlated and with uncorrelated noise. James P. Egan and William Benson. **40**: 20—1966

Masking-level differences with continuous and with burst masking noise. Dennis McFadden. **40**: 1414—1966

On the application of EC model to interaural jnd's. N. I. Durlach. **40**: 1392—1966

Signal-detection analysis of equalization and cancellation model. David M. Green. **40**: 833—1966

Width of the spectrum effective in the binaural release of masking. Man Mohan Sondhi and Newman Guttman. **40**: 600—1966

Letters to the Editor

Extension of "Examination of binaural interaction." Donald Henderson, Bruce H. Deatherage, and Terrence R. Dolan. **40**: 245—1966

4.9 Pitch. Absolute Pitch

Papers

Descriptive analysis of Doppler discrimination as a function of variations in dimensions of the sonar echo. Alan W. Lau. **40**: 565—1966

Masked DL for pitch memory. J. D. Harris. **40**: 43—1966

Pitch of a periodically interrupted tone. Elca Swigart. **40**: 1180—1966

Residue pitch: a remaining paradox and a possible explanation. M. R. Schroeder. **40**: 79—1966

Time separation pitch associated with noise pulses. Max E. McClellan and Arnold M. Small, Jr. **40**: 570—1966

Letters to the Editor

Pitch shifts of tones in wide-band noise. Sylvia J. Steiner and Arnold M. Small, Jr. **40**: 912, errata 1203—1966

Abstracts

Frequencies dominant in the perception of pitch of complex sounds. Roelof J. Ritsma. **40**: 1240—1966

Further investigations of pitch discrimination of pulse-train bursts. Aaron E. Rosenberg. **40**: 124—1966

Pitch of bands of noise. Arnold M. Small, Jr., and R. G. Daniloff. **40**: 1240—1966

Pitch of complex tones. R. Plomp. **40**: 1240—1966

Two-point thresholds in the ear. David J. Weiss. **40**: 1251—1966

4.10 Subjective Tones

Papers

Pitch of a periodically interrupted tone. Elca Swigart. **40**: 1180—1966

Residue pitch: a remaining paradox and a possible explanation. M. R. Schroeder. **40**: 79—1966

Time separation pitch associated with noise pulses. Max E. McClellan and Arnold M. Small, Jr. **40**: 570—1966

Letters to the Editor

Pitch shifts of tones in wide-band noise. Sylvia J. Steiner and Arnold M. Small, Jr. **40**: 912, errata 1203—1966

Abstracts

Subharmonic squelch effect. Peter J. Dallos. **40**: 1264—1966

4.11 Theories of Hearing

Papers

Binaural unmasking of complex signals. J. L. Flanagan and B. J. Watson. **40**: 456—1966

Further results on binaural unmasking and the EC model. Lawrence R. Rabiner, C. L. Laurence, and N. I. Durlach. **40**: 62—1966

Intensity discrimination of fluctuating signals. E. de Boer. **40**: 552—1966

Lateralization of a weak signal presented with correlated and with uncorrelated noise. James P. Egan and William Benson. **40**: 20—1966

Model of loudness summation applied to impaired ears. Bertram Scharf and Rhona P. Hellman. **40**: 71—1966

On the application of EC model to interaural jnd's. N. I. Durlach. **40**: 1392—1966

Residue pitch: a remaining paradox and a possible explanation. M. R. Schroeder. **40**: 79—1966

Signal-detection analysis of equalization and cancellation model. David M. Green. **40**: 833—1966

Time separation pitch associated with noise pulses. Max E. McClellan and Arnold M. Small, Jr. **40**: 570—1966

Weber's law, power law, and internal noise. E. Eijkman, J. M. Thijssen, and A. J. H. Vendrik. **40**: 1164—1966

Width of the spectrum effective in the binaural release of masking. Man Mohan Sondhi and Newman Guttman. **40**: 600—1966

Letters to the Editor

Comments on "Masking and discrimination." Bertram Scharf. **40**: 1192—1966

Extension of "Examination of binaural interaction." Donald Henderson, Bruce H. Deatherage, and Terrence R. Dolan. **40**: 245—1966

Time-frequency analysis in the hearing process. G. Gambardella and G. Trautteur. **40**: 1187—1966

Abstracts

Time-varying energy-detection model for discrimination and detection. G. Bruce Henning. **40**: 1250—1966

4.15 Perception of Signals

Papers

Binaural unmasking of complex signals. J. L. Flanagan and B. J. Watson. **40**: 456—1966

Decision rules in threshold determination. C. W. Stuckey, C. L. Hutton, and R. A. Campbell. **40**: 1174—1966

Descriptive analysis of Doppler discrimination as a function of variations in dimensions of the sonar echo. Alan W. Lau. **40**: 565—1966

Further results on binaural unmasking and the EC model. Lawrence R. Rabiner, C. L. Laurence, and N. I. Durlach. **40**: 62—1966

Influence of rise–fall time upon short-tone threshold. Peter J. Dallos and Kenneth R. Johnson. **40**: 1160—1966

Information in certain multidimensional sounds. Robert B. Chaney, Jr., and J. C. Webster. **40**: 447—1966

Integration of acoustic power at threshold by normal hearers. Wayne O. Olsen and Raymond Carhart. **40**: 591—1966

Intensity discrimination of fluctuating signals. E. de Boer. **40**: 552—1966

Lateralization of a weak signal presented with correlated and with uncorrelated noise. James P. Egan and William Benson. **40**: 20—1966

Masking-level differences with continuous and with burst masking noise. Dennis McFadden. **40**: 1414—1966

On the application of EC model to interaural jnd's. N. I. Durlach. **40**: 1392—1966

Operating characteristics from yes–no and forced-choice procedures. Arthur I. Schulman and Rhoda R. Mitchell. **40**: 473—1966

Perception of segments of English-spoken consonant-vowel syllables. William A. Grimm. **40**: 1454—1966

Signal-detection analysis of equalization and cancellation model. David M. Green. **40**: 833—1966

Some factors affecting the perception of continuity in alternately sounded tone and noise signals. Lloyd Elfner and Jerry L. Homick. **40**: 27—1966

Weber's law, power law, and internal noise. E. Eijkman, J. M. Thijssen, and A. J. H. Vendrik. **40**: 1164—1966

Letters to the Editor

Comments on "Masking and discrimination." Bertram Scharf. **40**: 1192—1966

Two-state threshold model and rating-scale experiments. D. E. Broadbent. **40**: 244—1966

Technical Notes and Research Briefs

Aurally-interpreted radar for astronauts? **40**: 504—1966

Biological sonar: the human. Charles E. Rice. **40**: 502—1966

Human hearing under water: Are things as bad as they seem? Stephen H. Feinstein. **40**: 1561—1966

Sonic aid for the blind. **40**: 503—1966

Abstracts

Busy or ringing? Parameters used in tone interpretation by telephone users. M. S. Schoeffler and J. A. Sheridan. **40**: 1240—1966

Detection of a narrow-band noise as a function of the interaural correlation of both signal and masker. W. A. Wilbanks. **40**: 1251—1966

Detection performance and two parameters of the auditory stimulus. Thomas L. Nichols and Lloyd A. Jeffress. **40**: 1250—1966

Discrimination of direction of auditory pulsed Doppler. Irwin Pollack. **40**: 1251—1966

Effect of duration on detection of a noise signal. Frederic L. Wightman and David M. Green. **40**: 1250—1966
Effect of duration upon detection with gated and continuous noise and signal. Ann Tucker, Rand B. Evans, and Lloyd A. Jeffress. **40**: 1250—1966
Effects of low-pass filtering on perception of consonant clusters. Patti Grubb. **40**: 1282—1966
Factors affecting the slope of empirical ROC curves. Joseph Markowitz and John A. Swets. **40**: 1250—1966
Frequencies dominant in the perception of pitch of complex sounds. Roelof J. Ritsma. **40**: 1240—1966
Physical correlates of perceived acoustic traits. William D. Voiers. **40**: 1282—1966
Time-varying energy-detection model for discrimination and detection. G. Bruce Henning. **40**: 1250—1966
Two-point thresholds in the ear. David W. Weiss. **40**: 1251—1966

4.16 Vibration and Tactile Senses

Papers

Input–output characteristics of the lateral-line sense organs of *Xenopus laevis*. G. G. Harris and D. C. Milne. **40**: 32—1966

Abstracts

Ultrastructure of the amphibian papilla in the bullfrog. Åke Flock and Britta Flock. **40**: 1262—1966

5 ACOUSTICAL INSTRUMENTS AND APPARATUS. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3z, 13.11, 13.11n, and 13.11t.)

5.1 General, Unclassified

Papers

Analysis of quadrupole methods for the velocity of sound. I. C. Romer, Jr., R. A. Gaggioli, and A. S. El-Hakeem. **40**: 86—1966
Pulse technique for measuring the scattering of sound from turbulence. William Baerg and W. H. Schwarz. **40**: 133—1966

Technical Notes and Research Briefs

An Improved Sonic Anemometer–Thermometer. S. Oleson. **40**: 507— 1966
New R & D reports on acoustic principles and devices. **40**: 924—1966
Wow and Flutter meter. **40**: 921—1966

Abstracts

Measurement of dynamic properties of materials, using a transfer-impedance technique. Jerome S. Parsons, Wallace Yater, and Fred Schloss. **40**: 1259—1966

Patents

Sound producing aerial top. Stephen J. Salayka. **40**: 291—1966
Sound producing toy wheel. William U. Conaghan. **40**: 291—1966

5.2 Amplifiers and Attenuators

Abstracts

Recent advances in pure-fluid acoustic amplification. H. H. Unfried. **40**: 1281—1966

5.3 Acoustic-Impedance Measurement. (See also 11.5 and 12.3z.)

Papers

Measurement of specific acoustic impedance. Joseph Wood Rogers. **40**: 1431—1966

Abstracts

Measurement of dynamic properties of materials, using a transfer-impedance technique. Jerome S. Parsons, Wallace Yater, and Fred Schloss. **40**: 1259—1966

5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. Acoustic Delay Lines and Resonators. (See also 5.15 and 12.3f.)

Papers

Finite-difference method for the investigation of the vibrations of solids and the evaluation of the equivalent-circuit characteristics of piezoelectric resonators. III. Contour modes of rectangular plates of Y-cut quartz. P. Lloyd and M. Redwood. **40**: 82—1966
High-speed sound spectrograph. A. J. Presti. **40**: 628—1966

Abstracts

Acoustical dispersive delay lines for pulse compression by fluid layered media. Pierre Tournois. **40**: 1268—1966
Acoustical dispersive delay lines for pulse compression by solid layered media. Pierre Tournois. **40**: 1268—1966
Piezoelectric analysis of the monolithic crystal filter. W. D. Beaver. **40**: 1258—1966
Superfluid Helmholtz resonators. Michael A. Kriss, Kenneth A. Shapiro, and Isadore Rudnick. **40**: 1261—1966
Transient response of a rectangular plate coupled with a Helmholtz resonator. G. D. Whitehouse and Richard L. Lowery. **40**: 1270—1966
Transient response spectra of coupled acoustical resonators. N. N. Reddy and Richard L. Lowery. **40**: 1280—1966

Patents

Acoustical system. John E. May, Jr., and John H. Rowen. **40**: 1578—1966
Adjustable ultrasonic delay line with input and output transducer mounted on sliding block. Terrence J. Geoghegan. **40**: 517—1966
Hybrid ceramic filters having two-terminal piezoelectric resonator in shunt with three-terminal piezoelectric resonator to improve harmonic rejection. Isao Toyoshima. **40**: 1578—1966
Independent multi-overtone operation of electro-mechanically frequency controlled oscillators. Frank Patterson Smith 2nd. **40**: 517—1966
Semiconductor ultrasonic signal-delay apparatus utilizing integral P–N junctions as electromechanical transducers. Lloyd P. Hunter. **40**: 1578—1966

5.5 Audiometers. (See also 4.4 and 4.5.)

Letters to the Editor

Interim bone-conduction thresholds for audiometry. Samuel F. Lybarger. **40**: 1189—1966
Objective audiometry. W. Tempest and M. E. Bryan. **40**: 914—1966

5.7 Ear Protectors and Earplugs. (See also 4.14.)

Papers

Basis for the design of a circumaural earphone suitable for MAP determinations. G. R. C. Atherley, P. Lord, and J. G. Walker. **40**: 607—1966

5.8 Loudspeakers, Horns, Measurements. Practical Sound Sources. (See also 5.13, 5.17, and 5.18.)

Technical Notes and Research Briefs

Giant horn for space flight center tests. **40**: 504—1966

Patents

Acoustic diaphragm. Mauritz F. Noren and Richard H. Scent. **40**: 518—1966

Acoustic tone equalizer. Randolph P. Mercurius. **40**: 518—1966

Adjustable column speaker enclosure. Basil L. Wilson. **40**: 518—1966

Corner speaker enclosure. Morris J. Rife. **40**: 518—1966

Electro-acoustical transducer. Robert R. Gamzon and Ephraim Heinrich Frei. **40**: 518—1966

High fidelity speaker enclosure. William H. Quinion. **40**: 518—1966

Loudspeaker. Eduart R. Doelitzsch. **40**: 518—1966

Loudspeaker. Bruce H. Vardeman. **40**: 1232—1966

Loudspeaker system. Abraham B. Cohen. **40**: 518—1966

Musical flower pot. John J. Rimi. **40**: 1232—1966

Permanent magnet type loudspeakers. James F. Eichler. **40**: 519—1966

Radio speaker attachment. Ernest D. Faulkner. **40**: 518—1966

Rotatable loudspeaker. Eli Mizrahi. **40**: 518—1966

Speaker. Elmore A. Heppner. **40**: 518—1966

Speaker arrangement. Carl A. Kessenich. **40**: 518—1966

Speaker assembly. Charles R. Fox. **40**: 1232—1966

Speaker design. Richard Namon. **40**: 518—1966

Speaker enclosure. Ralph E. Hutchins. **40**: 518—1966

Speaker enclosure system. Zennosuke Kuwayama. **40**: 517—1966

5.9 Microphones. Microphone-Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)

Papers

Analysis of electroacoustical transducers by differential immittance techniques. Abraham I. Dranetz and Harvey Rathbun, Jr. **40**: 412—1966

Foil-electret microphones. G. M. Sessler and J. E. West. **40**: 1433—1966

Technical Notes and Research Briefs

New American Standard for microphone calibration. **40**: 505—1966

Windscreening of Outdoor Microphones. Fred Skode. **40**: 1567—1966

Abstracts

Charge stability of electret microphones. G. M. Sessler and J. E. West. **40**: 1259—1966

Directional microphones. Harry F. Olson. **40**: 1248—1966

Flush-diaphragm condenser microphone for aerospace measurements. Jose C. Ortega. **40**: 1248—1966

Investigation of microphone nonlinearities, using the high-intensity pistonphone. H. E. Dahlke and George T. Kantarges. **40**: 1248—1966

Microphone rise-time response to a progressive shock wave. R. Brown, T. E. Siddon, and John J. Van Houten. **40**: 1259—1966

Performance of a head-contact microphone in wind noise. G. J. Sebesta, A. J. Mellen, R. W. Carlisle, and William B. Wadsworth. **40**: 1248—1966

Spatial resolution effected by a recessed microphone. Hugh M. Fitzpatrick. **40**: 1247—1966

Patents

Acoustical device with protective screen. Louis R. Burroughs. **40**: 519—1966

Ceramic microphone. Peter C. Desmares. **40**: 1579—1966

Frequency response of an electro-acoustic transducer. Erwin Martin. **40**: 1579—1966

Light-beam microphone and method. Gabriel M. Giannini and Delbert G. Van Ornum. **40**: 519—1966

Microphone. Charles E. Seeler. **40**: 519—1966

5.10 Navigational Instruments Using Air Sound. Altitude-Measuring Instruments. Sound Ranging (For Underwater Ranging see 13.11n.)

Papers

Sound-ranging technique for locating supersonic missiles. Henry Rachele. **40**: 950—1966

Technical Notes and Research Briefs

Sonic aid for the blind. **40**: 503—1966

Patents

Echo ranging apparatus. Charles A. Sicuranza. **40**: 768—1966

5.13 Sound-Reproducing Systems, Including Public-Address Systems, Stereophonic Reproduction

Patents

Apparatus for reverberating sounds. Weber Louis Rehde. **40**: 1232—1966

Artificial acoustic reverberation with feedback and means for preventing sound discontinuities. Willem Tak. **40**: 1232—1966

Aural stereophonic balance indicator. Edwin R. Golik. **40**: 1233—1966

Auto radio speaker units for receiving and reproducing sound from drive-in theaters and the like. Earl R. Easton. **40**: 292—1966

Binaural volume tuner. Sam S. Romano. **40**: 1232—1966

Method for stereophonic re-recording. Edward M. Mattis. **40**: 519—1966

Remotely controlled sound system. Barry M. Epstein. **40**: 519—1966

Reproducing system. Martin Fouqué. **40**: 292—1966

Sound reproduction from monaural information. Michael J. Palladino. **40**: 1233—1966

System for stereo separation radio control, elimination of cross-talk and the like. Ralph Glasgal. **40**: 1232—1966

5.16 Sound Recording and Reproducing. General

Technical Notes and Research Briefs

Device may help blind to "speed hear" recordings. **40**: 503—1966

Patents

Piezoelectric phonograph pickup. Joseph W. Crownover. **40**: 1233—1966

Signal compression and expansion system. William S. Bachman, Abraham A. Goldberg, and Arthur Kaiser. **40**: 944—1966

Sound film reproducing installation comprising two projectors each having an optical sound head and a magnetic sound head. Willem Johan Maria Jansen. **40**: 519—1966

5.16d Mechanical Recording and Reproducing

Letters to the Editor

Design of a perfectly tracking pickup arm. H. J. Wouterlood. **40**: 246—1966

Patents

Doll having sound reproducing device. Charles A. Elwell. **40**: 519—1966

Doll with phonograph. Ernest C. Freeman and Robert W. Freeman. **40**: 291—1966

Optical sound recording and reproduction. Fred P. Beguin. **40**: 291—1966

Speaking doll and phonograph device therefor. John W. Ryan. **40**: 769—1966

Stereophonic electrodynamic transducer. Hans-Joachim Klemp and Horst Redlich. **40**: 520—1966

5.16f Photographic Recording and Reproducing

Patents

Recorder for optically recording a sound record area. John A. Maurer. **40**: 520—1966

Sound record carrier. Morris Schwartz and Werner K. Bender. **40**: 292—1966

Sound scanning assembly in a strip film projector. Morris Schwartz and Werner K. Bender. **40**: 292—1966

5.16m Magnetic Recording and Reproducing

Patents

Adjustable support means for a magnetic recording or reproducing head. Eric William Jacobs and Leonard John Rigbey. **40**: 520—1966

Aerodynamically supported magnetic head construction for magnetic drums, discs and the like. Joseph E. Smith, Jr. **40**: 527—1966

Apparatus for fixing and adjusting a transducer coacting with a guided record carrier. Viktor Pollaschek. **40**: 524—1966

Apparatus of synchronous recording on a number of magnetic recording sheets. Yasushi Hoshino, Mamoru Namikawa, and Shigezo Tochihara. **40**: 521—1966

Attachment for magnetic recorder tape. Friedrich Louzil. **40**: 525—1966

Boundary-displacement magnetic recording or reproducing head. Saburo Uemura and Moriji Handa. **40**: 521—1966

Boundary displacement multichannel magnetic head. Saburo Uemura and Yoshio Sakai. **40**: 524—1966

Double magnetic head. Yves-Jean Francois Brette and Jacques Pierre Léon Droux. **40**: 527—1966

Electromagnetic transducer head. Donald E. Rutter. **40**: 525—1966

Electromagnetic transducer supporting assembly. Edward M. Johnson. **40**: 522—1966

Electron beam scanning semiconductor magnetic tape readout device. Charles R. Weidman. **40**: 526—1966

Electronic switching system for magnetic tape apparatus. Boyd L. Stratton. **40**: 522—1966

Ferrite coating. Michel B. Vilensky. **40**: 528—1966

Hand recording apparatus. John Lechmere Owner and John Archer. **40**: 521—1966

Magazine for a magnetic tape recorder-reproducer. Friedrich Laa and Friedrich Louzil. **40**: 523—1966

Magnetic adjusting means for magnetic translating device. Joseph A. Sawyer. **40**: 527—1966

Magnetic disc. Ascher H. Shapiro. **40**: 525—1966

Magnetic drum memory system. Floyd G. Steele. **40**: 523—1966

Magnetic recorder head assembly. Stanley M. Oster and Mark L. Naiman. **40**: 523—1966

Magnetic recording. John J. Rheinfrank. **40**: 526—1966

Magnetic recording cross-talk elimination. James L. Pettus and Michael Rettinger. **40**: 520—1966

Magnetic-recording head switch. John A. Lawrence. **40**: 525—1966

Magnetic recording heads with monitor of recorded signal. Philip Smaller. **40**: 527—1966

Magnetic scanning head. Dennis Gabor. **40**: 524—1966

Magnetic sound recording and reproducing dictation appliance. Willy Müller. **40**: 525—1966

Magnetic tape transducer. James U. Lemke. **40**: 526—1966

Magnetic tape transducer. Charles J. Peters. **40**: 522—1966

Magnetic tape transducing apparatus. Francis Rawdon Smith. **40**: 525—1966

Magnetic transducer with reduced pore volume adjacent the pole tips. Jules Bos, Simon Duinker, and Andreas Leopoldus Stuijts. **40**: 525—1966

Magnetic transducing assembly. Donald F. Elridge. **40**: 527—1966

Method and apparatus for erasing recordings on magnetic tape and film. Silvaan René Lambeir and Modest Charline Vereycken. **40**: 528—1966

Method of fabricating magnetic tape. Florence Nesh. **40**: 1233—1966

Method of making magnetic record transducing heads. Heiman W. Koren and Ignatius Michalko. **40**: 523—1966

Multichannel magnetic erasing heads. Mark Naiman. **40**: 521—1966

Oriented tape. Marvin Camras. **40**: 526—1966

Recorder-reproducers. Barton A. Proctor. **40**: 521—1966

Recording and reproducing machine. Fred Hauser. **40**: 524—1966

Recording and reproducing system. Dwight D. Wilcox, Jr. **40**: 528—1966

Reproducing transducer for moving dielectric record. Marvin Camras. **40**: 522—1966

Slotted Hall effect transducer. Friedrich Kuhrt and Gustav Stark. **40**: 521—1966

Sound recording and reproducing apparatus. Stuart D. Noble. **40**: 521—1966

Sound reproducing device for elevators. Karl Stutz. **40**: 523—1966

Sound synchronized slide projector. Martin E. Gerry. **40**: 1579—1966

Split channel recording technique and apparatus therefor. Charles D. Mee. **40**: 525—1966

Tape apparatus. Ralph G. Comleigh and Frank A. Paulus. **40**: 527—1966
Tape editing aid. Harold G. Hummel. **40**: 522—1966
Tape recorder. Maurice E. Hardy. **40**: 526—1966
Tape transport. Alexander R. Maxey. **40**: 522—1966
Transducer. Wallace W. Koskie, Donald K. Sampson, and Byron D. Smith. **40**: 524—1966
Transducer positioning system utilizing record with interspersed data and positioning information. Robert J. Sippel. **40**: 527—1966
Transducer support apparatus for magnetic recorder. Fred H. Bargetzi and Clarence A. Muller. **40**: 524—1966
Transistor compensating circuit for magnetic recording head. William F. Simon. **40**: 528—1966

5.17 Telephones, Telephone Earphones. (See also 5.13.) Intercommunication Systems

Papers

Basis for the design of a circumaural earphone suitable for MAP determinations. G. R. C. Atherley, P. Lord, and J. G. Walker. **40**: 607—1966

Abstracts

Effect of hearing-aid gain control on acoustic gain. Roger N. Kasten, Stephen H. Lotterman, and Sally G. Revoile. **40**: 1241—1966
Implementation of a self-adapting echo canceler. A. J. Presti. **40**: 1255—1966
Implications of automatic-equalizer technology for the problem of echo suppression. H. R. Rudin. **40**: 1255—1966
Nonlinear distortion and battery life in hearing aids. Stephen H. Lotterman, Roger N. Kasten, Sally G. Revoile, and Diane Majerus. **40**: 1240—1966
Subjective effects of noise and loss in telephone transmission. Tapas K. Sen. **40**: 1256—1966
Subjective evaluation of delay and echo suppressors in telephone communication. Akira Miura, Rikio Sato, and Kuniichi Nagata. **40**: 1255—1966
Theory and computer simulation of a self-adapting echo canceler. Man Mohan Sondhi. **40**: 1255—1966

Patents

Acoustical chamber. John C. L. Leslie. **40**: 529—1966
Circuit arrangement for an intercom system with alternative operation. Hans-Ulrich Krauer, Georg Vogel, and Rudolf Bayer. **40**: 528—1966
Circuit for intercommunications systems. Fred Schmitthenner. **40**: 528—1966
Communication network. Robert F. White. **40**: 293—1966
Coupling circuit for a communication system. Clarence L. Aurenheimer. **40**: 292—1966
Dynamic transducer. Gaston A. Marchand and Donald W. Powers. **40**: 1579—1966
Magnetic material and sound reproducing device constructed therefrom. Walter S. Blume. **40**: 529—1966
Telephone booth. Percival H. Sherron. **40**: 769—1966
Two-way audio communication. Stevens H. Harrison. **40**: 1233—1966
Underwater communicator. Henry-Anthony del Giudice and Peter N. Wood. **40**: 529—1966

5.18 Transducnig Principles, Structures and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)

Papers

Analysis of electroacoustical transducers by differential immittance techniques. Abraham I. Dranetz and Harvey Rathbun, Jr. **40**: 412—1966
Finite-difference method for the investigation of the vibrations of solids and the evaluation of the equivalent-circuit characteristics of piezoelectric resonators. III. Contour modes of rectangular plates of Y-cut quartz. P. Lloyd and M. Redwood. **40**: 82—1966
Nearfield of a dipole for measurements in shallow lakes. Robert J. Bobber. **40**: 1300—1966

Letters to the Editor

Comments on "Acoustic response of a rectangular receiver to a rectangular source." Elizabeth M. Arase. **40**: 1195—1966
Interaction radiation resistance and reactance measurements for two small transducers at an air–water surface. F. B. Stumpf and L. A. Crum. **40**: 1554—1966
Unique directional reflectors for omnidirectional underwater acoustic transducers. Arthur A. Crews and Robert L. Erath. **40**: 1556—1966

Abstracts

Measurements on the effect of transducer size on the resolution of boundary-layer pressure fluctuations. F. Ellsworth Geib, Jr. **40**: 1247—1966

Patents

Control apparatus. O. Hugo Schuck. **40**: 769—1966
Converting mechanical into electrical oscillations. Manfred Zerbst and Günther Winstel. **40**: 1579—1966
Device for converting mechanical into electrical oscillations. Richard Karmann and Manfred Zerbst. **40**: 529—1966
Electric to sonic transducer. Roy B. Power. **40**: 529—1966
Electro-acoustic transducers. William D. Cragg. **40**: 1579—1966
Fluid-operated acoustic device. Billy M. Horton. **40**: 944—1966
Fluid-operated system. Billy M. Horton. **40**: 944—1966
Piezo crystal fluid analyzer. William H. King, Jr. **40**: 1579—1966
Prestressed ceramic transducer. Howard R. Lewis and Stephen N. Surmeian. **40**: 529—1966
Ultrasonic interrupter. Roy D. Buell, Jr., and Ben B. Peterson. **40**: 1579—1966
Vibratory motor for therapeutic device. Gene M. Neff. **40**: 293—1966

5.18d Electrodynamic Transducers

Patents

Transducer. Rudolf Engel and Horst Redlich. **40**: 529—1966

5.18e Electrostatic Transducers

Papers

Foil-electret microphones. G. M. Sessler and J. E. West. **40**: 1433—1966

Abstracts

Charge stability of electret microphones. G. M. Sessler and J. E. West. **40**: 1259—1966

Flush-diaphragm condenser microphone for aerospace measurements. Jose C. Ortega. **40**: 1248—1966

5.18g Electromagnetic Transducers

Patents

Transducer. Peter K. Church. **40**: 529—1966

Transducer cartridge for precision gages. Richard E. Roeger. **40**: 529—1966

5.18p Piezoelectric Transducers, Ferroelectrics

Papers

Effects of one-dimensional pressure on the properties of several transducer ceramics. R. Y. Nishi. **40**: 486—1966

Electrodynamic vibration standard with a ceramic moving element. T. Dimoff. **40**: 671—1966

Finite-difference method for the investigation of the vibrations of solids and the evaluation of the equivalent-circuit characteristics of piezoelectric resonators. III. Contour modes of rectangular plates of Y-cut quartz. P. Lloyd and M. Redwood. **40**: 82—1966

Letters to the Editor

Miniature transducer assembly for measuring the properties of the wall-pressure field in turbulent flows. J. Michael Clinch. **40**: 254—1966

Abstracts

Acoustical interferometer for cryogenic liquids. R. W. Leonard, H. Seguin, and J. S. Imai. **40**: 1268—1966

Directional characteristics of slotted piezoelectric ceramic tubes. John A. Devine. **40**: 1248—1966

Excitation and detection of plane shear waves by a quartz transducer with an electrode array. G. A. Coquin. **40**: 1259—1966

Piezoelectric analysis of the monolithic crystal filter. W. D. Beaver. **40**: 1258—1966

Piezoresistive coefficients of noncubic crystals. Thomas L. Ward. **40**: 1262—1966

Thickness-shear and thickness-twist modes in quartz plates with incomplete electrodes. W. J. Spencer and R. J. Byrne. **40**: 1259—1966

Transmission parameters of thickness-driven piezoelectric transducers arranged in multilayer configurations. E. K. Sittig. **40**: 1259—1966

Ultrasonic measurement of elastic and piezoelectric coefficients of lithium tantalate. R. T. Smith. **40**: 1269—1966

Variational method for electroelastic-vibration analysis. Errol P. Eer Nisse. **40**: 1260—1966

Patents

Electromechanical transducer motors. Stephen W. Tehon. **40**: 530—1966

Piezoelectric crystal. Harold C. Nightingale and Richard M. Gutter. **40**: 530—1966

Piezoelectric transducer. Donald L. White. **40**: 769—1966

Sound projector. Klaus Walther. **40**: 769—1966

Book Reviews

Landolt-Börnstein Zahlenwerte und Funktionen aus Naturwissenschaften und Technik (Numerical Data and Functional Relationships in Science and Technology), Gruppe III, Volume 1: Kristallund Festkorperphysik. Elastische, piezoelektrische, piezooptische, und elektrooptische Konstanten von Kristallen. R. F. S. Hearmon and R. Bechmann. (Reviewed by Walter L. Bond.) **40**: 942—1966

5.19 Tuning Forks, Frequency Standards, Frequency-Measuring and -Recording Instruments. Time Standards. Chronographs

Patents

Electromechanical oscillator apparatus. Robert L. Watters. **40**: 530—1966

5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 12., 12.3, 12.3i, 12.3p, and 12.3v.)

Papers

Electrodynamic vibration standard with a ceramic moving element. T. Dimoff. **40**: 671—1966

Technical Notes and Research Briefs

New metronome for movie scoring features ½-frame precision. **40**: 923—1966

6 MUSIC AND MUSICAL INSTRUMENTS

6.1 General, Unclassified

Patents

Apparatus for motion of light corresponding to sound variations. Leon A. Wortman. **40**: 293—1966

Electrically operated musical device. Ernest A. Pedicano. **40**: 293—1966

Sound responsive light system. Dale M. Irons. **40**: 944—1966

Book Reviews

The Physics of Musical Sounds. C. A. Taylor. (Reviewed by Robert W. Young.) **40**: 1575—1966

6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators

Patents

Compound musical instrument. Francois Pierre Maurice Baschet. **40**: 293—1966

Musical instrument with mechanical radiating means. Francois Pierre Maurice Baschet. **40**: 293—1966

6.3 Brass Wind Instruments (Lip-Vibrated)

Technical Notes and Research Briefs

Would you believe: A standard trumpet? **40**: 1564—1966

Abstracts

Open tones of musical horns. Frederick J. Young. **40**: 1252—1966

Working theory of trumpet air-column design. W. T. Cardwell, Jr. **40**: 1252—1966

Patents

Adjustable support for wind instruments. Haig A. De Mire. **40**: 294—1966

Brass wind instrument. Miloš Kravka. **40**: 294—1966
Hand support for a horn. Arthur L. Miccio. **40**: 294—1966
Trigger mechanism for trumpet. Vito Pascucci and Alvin Glantz. **40**: 294—1966

6.4 Drums and Other Membranophonic Instruments

Patents

Drumhead construction. J. G. Stone, Jr., and Henry H. Slingerland, Jr. **40**: 1580—1966
Pneumatic drum and banjo head tighteners. John A. O. Sloan. **40**: 944—1966

6.5 Pipe Organs

Letters to the Editor

Relation of air-column resonances to sound spectra produced by wind instruments. A. H. Benade. **40**: 247—1966

Abstracts

Rôle of jet-edge asymmetry in pipe voicing. S. A. Elder. **40**: 1252—1966

Patents

Double touch key for musical instruments. Paul A. Klann. **40**: 295—1966
Pedal board for organs. Paul A. Klann. **40**: 294—1966
Pipe organ action. Roman Guenther. **40**: 294—1966

6.6 Pianos and Other Keyboard Stringed Instruments

Patents

Auxiliary piano keyboard. Valerie Weigl. **40**: 295—1966
Bridle wire. Clifford W. Andersen. **40**: 296—1966
Coupling arrangement. Clifford W. Andersen. **40**: 295—1966
Drop type piano action. Phillip J. Roehrig. **40**: 770—1966
Keyfork arrangement. Clifford W. Andersen and Phillip J. Roehrig. **40**: 295—1966
Method of attaching covering material to piano action hammer butts, apparatus therefor and article produced thereby. Clifford W. Anderson and Phillip J. Roehrig. **40**: 770—1966
Piano action. Clifford W. Andersen and Charles S. Corey. **40**: 295—1966
Piano action. Clifford W. Andersen and Phillip J. Roehrig. **40**: 296—1966
Piano action. Phillip J. Roehrig. **40**: 295—1966
Piano action. Charles F. Smith. **40**: 297—1966
Piano action. Julius E. Underwood, Jr. **40**: 297—1966
Piano action and materials for making the same. Phillip J. Roehrig. **40**: 295—1966
Piano actions. Arthur Bernstein. **40**: 296—1966
Piano action spoon. Clifford W. Andersen. **40**: 297—1966
Piano case. Clifford W. Andersen. **40**: 295—1966
Pianofortes. John A. Salmons. **40**: 296—1966
Piano hammer assemblies. Arlo E. Rice. **40**: 298—1966
Piano having chord playing means. Lee L. Von Gunten. **40**: 770—1966
Piano having electrically actuated key playing means. Lee L. Von Gunten. **40**: 770—1966
Piano having electrically controlled note sustaining means. Lee L. Von Gunten. **40**: 770—1966
Piano having electric playing means therefor. Lee L. Von Gunten. **40**: 296—1966
Piano key actions. Edward R. Camillucci. **40**: 297—1966
Piano playing attachment. Herbert W. Sweeny. **40**: 295—1966
Piano teaching device. Edward J. Amrein. **40**: 297—1966
Piano with electric note playing means. Lee L. Von Gunten. **40**: 296—1966
Solenoid means for actuating and guiding piano playing means. Lee L. Von Gunten. **40**: 297—1966
Symmetrical bridle wire. Clifford W. Andersen. **40**: 297—1966

6.7 Violin Family. Stringed Instruments, Except Keyboard Type

Abstracts

Corrected string lengths to compensate for tension and damping. O. J. Burchett and R. R. Eaton. **40**: 1252—1966

Patents

Device for tuning and tensioning stringed musical instruments. Cloyse R. Hepler. **40**: 945—1966
Device for tuning stringed instruments. Thomas J. Jira. **40**: 298—1966
Electrical stringed instrument. Charles E. Hull and Oliver Jespersen. **40**: 1580—1966
Electromagnetic pickup for electrical musical instruments. Clarence L. Fender. **40**: 530—1966
Guitar incorporating inertial vibrato device. Clarence L. Fender. **40**: 1234—1966
Musical instrument. Robert C. Currier. **40**: 298—1966
Musical instrument. Hermann Friedrich Meinel. **40**: 1233—1966
Neck stretching device in stringed instruments. Olof Holger Berglund. **40**: 1580—1966
Peg device for stringed instruments. Douglas Jaquith. **40**: 944—1966
Pick-ups for guitars and coupling circuits therefore. James Ormston Burns and Gordon Spencer Chandler. **40**: 1580—1966
Resonator attachment for string instruments. Joseph Bernardi. **40**: 298—1966
Stringed instrument of guitar type. David D. Bunker. **40**: 1581—1966
Stringed musical instrument. Karl Wilhelm Luckert. **40**: 1580—1966
Stringed musical instrument. Semie A. Moseley. **40**: 530—1966
Stringed musical instrument. Glenn R. Peterson, Jr., and Henry Ruckner. **40**: 530—1966
Tone levers for individual strings in a stringed musical instrument. Earl D. Porter. **40**: 1581—1966
Tremolo device for stringed instruments. Harry G. Cole. **40**: 1580—1966

6.8 Wood Winds

Papers

Resonance and sounding frequencies of the flute. John C. Coltman. **40**: 99—1966

Abstracts

Effect of warping of the reed tip on clarinet tone. John Backus. **40**: 1252—1966

Patents

Toy. Marvin I. Glass and Arthur E. Neumann. **40**: 1581—1966

6.9 Electrical Musical Instruments

Patents

Acoustic apparatus for producing tremolo and vibrato. Donald J. Leslie. **40**: 304—1966

Artificial reverberation device. William C. Laube, Jr. **40**: 302—1966

Artificial reverberation unit. Alan C. Young. **40**: 299—1966

Audio modulation system. William C. Wayne, Jr. **40**: 301—1966

Audio signal generators and their method of manufacture. Jean Adolphe Dereux. **40**: 299—1966

Breath controlled electronic musical instrument. Herbert M. Neustadt. **40**: 303—1966

Chorus effects in electronic organ. Daniel W. Martin. **40**: 770—1966

Device for altering tone quality in electronic musical instrument or the like. James Paul White. **40**: 301—1966

Electrical music system. Don L. Bonham. **40**: 303—1966

Electrical vibrato and tremolo devices. Don L. Bonham. **40**: 300—1966

Electronic musical instrument. Thomas B. Gibbs, William H. Krug, and James L. Marshall. **40**: 301—1966

Electronic musical instrument. Shigeaki Mabuchi and Kiyohiko Itoh. **40**: 771—1966

Electronic music circuit. Donald M. Park. **40**: 300—1966

Electronic organ construction. Donald W. Elbrecht. **40**: 299—1966

Electronic organ stop switching. John R. Brand. **40**: 302—1966

Electronic organ with punch card registration selection system. Richard H. Campbell, Jr., and George H. Hadden. **40**: 304—1966

Expression pedal control system providing reverberation and having latch means. John M. Hanert. **40**: 299—1966

Fixed-free-reed electronic piano with electrodynamic translating means controlling the odd and even partial-frequency components. Benjamin F. Miessner. **40**: 770—1966

Fixed-free-reed electronic piano with improved inter-partial-ratio integralizing arrangements. Benjamin F. Miessner. **40**: 770—1966

Gating system for electrical musical instrument. Alfred J. Bissonette and Walter Munch, Jr. **40**: 304—1966

Intensity rate of change control for musical instruments. Melville Clark, Jr. **40**: 299—1966

Keyboard construction for electric musical instrument. Lyman J. Haviland. **40**: 298—1966

Keyboard-type musical instrument. Donald K. Coles. **40**: 300—1966

Legato percussion circuit. Donald R. Kern. **40**: 303—1966

Magnetic tone generator for musical instruments. Louis Martinez. **40**: 303—1966

Multiple sound channel tremolo device. Donald J. Leslie. **40**: 298—1966

Musical instrument. Sune Hearly Bergman. **40**: 298—1966

Musical instrument. Minoru Ikeda. **40**: 303—1966

Organ tone chamber. Leonard W. Pavia. **40**: 771—1966

Percussion circuit. Herbert E. Meinema. **40**: 302—1966

Percussion circuit for electronic organs. Richard H. Campbell, Jr. **40**: 299—1966

Percussion tone monophonic electrical musical instrument. John M. Hanert. **40**: 299—1966

Photoelectric organ. Richard E. Williams. **40**: 300—1966

Pitch broadening apparatus for musical instruments having electronic tone generators. Donald J. Leslie. **40**: 300—1966

Reed with curved taper. Harold E. W. Bode. **40**: 302—1966

Reverberation loudspeaker. Weber Rehde. **40**: 301—1966

Semi-automatic rhythm accompaniment. Donald J. Campbell. **40**: 1581—1966

Sound producing system. Kazukiyo Ishimura. **40**: 302—1966

Sound system. Michael J. London and William Deasey. **40**: 300—1966

Sound volume controller for electronic musical instruments. Akira Nakada. **40**: 771—1966

System for processing musical spectra. William C. Wayne, Jr. **40**: 302—1966

Tonality controller for electronic organ. Nobumitsu Hoshinomiya. **40**: 303—1966

Tone generator. Robert J. Ziehlke. **40**: 301—1966

Tone production system in electronic musical instrument. Akira Yokoyama. **40**: 303—1966

6.10 Reed Organs, Accordions, Harmonicas

Patents

Brass roller action key pivot mounting. Thomas S. Lo Duca. **40**: 304—1966

Reed for wind instruments. Anthony Montenare. **40**: 531—1966

6.12 Intonation. Vibrato. Musical Scales. Musical Composition

Letters to the Editor

Attaining consonance in arbitrary scales. J. R. Pierce. **40**: 249—1966

Abstracts

Corrected string lengths to compensate for tension and damping. O. J. Burchett and R. R. Eaton. **40**: 1252—1966

Experiments on the musical-interval sense. A. G. Pikler. **40**: 1253—1966

Graphical language for the scores of computer-generated sounds. M. Mathews and Lawrence Rosler. **40**: 1252—1966

History and theory of the tonal spiral. A. G. Pikler. **40**: 1253—1966

Spatial chords. B. Julesz and H. Levitt. **40**: 1253—1966

6.13 Electronic Music

Abstracts

Graphical language for the scores of computer-generated sounds. M. Mathews and Lawrence Rosler. **40**: 1252—1966

7 NOISE AND NOISE CONTROL

7.1 General, Unclassified

Papers

Response of a flexible panel to turbulent flow: Running-wave versus modal-density analysis. H. S. Ribner. **40**: 721—1966

Sound transmission through a finite, closed, cylindrical shell. Pritchard H. White. **40**: 1124—1966

Temporary threshold shifts in hearing from exposure to combined impact/steady-state noise conditions. Alexander Cohen, Bengt Kylin, and Paul J. LaBenz. **40**: 1371—1966

Technical Notes and Research Briefs

National and international aspects of noise legislation. **40**: 922—1966

Abstracts

Perceived noisiness of pure tones: a status report. K. S. Pearsons and Dwight E. Bishop. **40**: 1237—1966

Performance of a head-contact microphone in wind noise. G. J. Sebesta, A. J. Mellen, R. W. Carlisle, and William B. Wadsworth. **40**: 1248—1966

Pitch of bands of noise. Arnold M. Small, Jr., and R. G. Daniloff. **40**: 1240—1966

Tolerance of glass for high-level noise exposure. Jerry P. Christoff, Paul S. Veneklasen, and John Huh. **40**: 1270—1966

News

Acoustical training schools. **40**: 936—1966

7.2 Annoyance. Effect of Noise on Human Beings

Papers

Effect of noise, system gain, and assigned task on talking levels in loudspeaker communication. Mark B. Gardner. **40**: 955—1966

Judgments of the relative and absolute acceptability of aircraft noise. Dwight E. Bishop. **40**: 108—1966

Reliability of TTS from impulse-noise exposure. David C. Hodge and R. Bruce McCommons. **40**: 839—1966

Letters to the Editor

Acoustical hazards of children's "toys." David C. Hodge and R. Bruce McCommons. **40**: 911—1966

Abstracts

Auditory afterimages in gated noise. Robert C. Lummis, Newman Guttman, and Donald E. Bock. **40**: 1240—1966

Correlation of objective measures with subjective ranking of motor-vehicle noise. Ralph K. Hillquist. **40**: 1254—1966

General approach to forensic acoustics. Roy D. Jablonsky and Thomas L. Ward. **40**: 1274—1966

Sound duration and its affect on judged annoyance. J. W. Little and J. Mabry. **40**: 1254—1966

7.4 Community Noise

Papers

Judgments of the relative and absolute acceptability of aircraft noise. Dwight E. Bishop. **40**: 108—1966

Abstracts

Computer simulations of highway traffic and associated noise levels. C. M. Fletcher and W. E. Clark. **40**: 1273—1966

Use of acoustical modeling in airport-noise studies. Duane R. Simmons. **40**: 1254—1966

Use of building barriers for airport-neighborhood noise control. Paul S. Veneklasen. **40**: 1254—1966

7.5 Noise Spectra

Letters to the Editor

Energy spectral density of the sonic boom. J. R. Young. **40**: 496—1966

Abstracts

Computer simulations of highway traffic and associated noise levels. C. M. Fletcher and W. E. Clark. **40**: 1273—1966

Digital analysis of impulsive noise. William W. Lang, George C. Maling, Jr., and W. A. Taylor. **40**: 1273—1966

Perceived noisiness of pure tones: a status report. K. S. Pearsons and Dwight E. Bishop. **40**: 1237—1966

7.6 Noise in Buildings. (See also 2.2.)

Abstracts

Noise in apartments from services and utilities. Ronald L. McKay. **40** 1246—1966

Reduction of aircraft noise measured in several single-family houses. Dwight E. Bishop. **40**: 1246—1966

7.7 Machinery Noise. Mufflers. Noise Silencers

Abstracts

Accuracy considerations in fan sound measurements. Peter K. Baade. **40**: 1238—1966

Acoustics of high-speed turbine-driven trains. Harold R. Mull. **40**: 1249—1966

Computer simulations of highway traffic and associated noise levels. C. M. Fletcher and W. E. Clark. **40**: 1273—1966

Correlation of objective measures with subjective ranking of motor-vehicle noise. Ralph K. Hillquist. **40**: 1254—1966

Effects of increased inlet-guide-vane/rotor spacing on compressor-noise reductions. W. L. Copeland and J. L. Crigler. **40**: 1249—1966

Evaluation of acoustical enclosures, using Markov chains. Roger H. Peterson. **40**: 1274—1966

Fans and pure tones. Knut S. Nordby and K. K. Woehrle. **40**: 1253—1966

Generation of acoustic-duct modes by internal sources. C. L. Morfey. **40**: 1249—1966

Influence of blade shape on compressor noise. Bruce T. Hulse. **40**: 1253—1966

Noise control of on-board auxiliary power units for aircraft use. Vernon E. Callaway. **40**: 1249—1966

Origin and characteristics of sound generation in compressors and fans. Alan Powell. **40**: 1237—1966

Pratt & Whitney Aircraft experience in compressor-noise reduction. Thomas G. Sofrin and John C. McCann. **40**: 1248—1966

Properties of fiber metal acoustically resistive materials. James I. Fisher. **40**: 1237—1966

Reduction of compressor-noise radiation. M. V. Lowson. **40**: 1248—1966

Reduction of turbomachinery noise by absorption and choked flow. William C. Sperry. **40**: 1237—1966

Sound output for gas-turbine power plants. R. R. Audette. **40**: 1237—1966

Patents

Airflow and noise controlling plenum diffuser assembly. Jerome W. Schutt. **40**: 1581—1966

Air mingling sound suppressor for jet engine. Robert Lee and Harry D. Sowers. **40**: 535—1966

Ceramic coated muffler with liquid flow gaps between partitions and shell. Walter H. Powers. **40**: 536—1966

Ceramic mufflers. Deo R. Mattoon. **40**: 535—1966

Ceramic muffler with resilient sealing gaskets. Deo R. Mattoon. **40**: 535—1966

Combination exhaust conduit and muffler. Robert W. Compo. **40**: 537—1966

Compressor muffler construction and method for muffling compressor discharge gases. Karl M. Gerteis. **40**: 531—1966

Compressor muffler having adjustable baffle means controlled by thermally responsive element. Leon Williamitis. **40**: 533—1966

Exhaust muffler with filling of porous ceramic cinders and method of making same. James J. Sunday. **40**: 532—1966

Exhaust system. William L. Saunders. **40**: 532—1966

Heat and sound insulating jacket for exhaust gas muffler and tail pipe assembly. Walter A. Plummer. **40**: 537—1966

Jet engine noise suppressor with shroud for aspiration of air into exhaust stream. James R. Ardoin. **40**: 533—1966

Marine type muffler. Thomas N. Kelly. **40**: 1234—1966

Method and apparatus for attenuating sound waves in gas streams. Floyd E. Deremer. **40**: 534—1966

Muffler article and method of casting same. Frank Leonard Kleinig. **40**: 535—1966

Muffler having depressed channel forming tuning passages. Paul F. Jettinghoff. **40**: 533—1966

Muffler having spaced frusto-conical baffle plates with perforated center tube and attached cooling fins. James R. Bryson and Robert R. Cassilly. **40**: 531—1966

Muffler internally coated with highly refractory fibers. Games Slayter, Robert G. Russell, and Willard L. Morgan. **40**: 536—1966

Mufflers for inboard motor boats. Marvin L. Parker. **40**: 531—1966

Muffler with interlocked casing and baffle members. **40**: 535—1966

Muffler with internal passages formed in mesh-like fiber-filled cage. Douglas W. Flynn. **40**: 537—1966

Muffler with one-piece outer housing. Walter H. Powers. **40**: 536—1966

Muffler with transverse expanded metal baffles. Gust H. Bjork. **40**: 535—1966

Muffler with tuned silencing chambers. John C. Walker. **40**: 533—1966

Muffler with two longitudinally separated chambers. William C. Whitney. **40**: 533—1966

Noise abatement method and apparatus. John M. Tyler and Thomas G. Sofrin. **40**: 532—1966

Noise and air flow controlling plenum return assembly. Jerome W. Schutt. **40**: 1581—1966

Noise minimizing device for home ice maker. Wilbur G. Peyer. **40**: 304—1966

Sealing and sound absorbing means for air handling apparatus. Alva D. O'Connell. **40**: 1234—1966

Silencer and heat exchanger device. Hugo V. Giannotti. **40**: 537—1966

Sound attenuating gas conduit. Edmund Ludlow and Benjamin H. Irwin. **40**: 531—1966

Sound suppressing device comprising elastic tubular sleeve for air actuated percussive type tools. John W. Reynolds. **40**: 535—1966

Spiral flow baffle system. Cloyd D. Smith. **40**: 537—1966

Three-piece tri-flow muffler. Paul F. Jettinghoff. **40**: 534—1966

Two-piece muffler comprising external shell and concentric deformed inner tube. Ervin C. Lentz and Karl K. Kerns. **40**: 533—1966

Valve-like silencer on end of exhaust pipe. Ernest Murray and Kathleen Murray. **40**: 534—1966

Wet muffler with cup-shaped baffles. Sergius Vernet. **40**: 534—1966

7.8 Noise Generators (Solid, Liquid, and Gasous). Sirens

Patents

Acoustic siren for generating wide band noise with improved efficiency. John N. Cole and Henning E. Von Gierke. **40**: 304—1966

Sonic pressure wave generator. Nathaniel Hughes. **40**: 538 (3 patents)—1966

7.10 Aerodynamic Noise. Jet Noise

Papers

Judgments of the relative and absolute acceptability of aircraft noise. Dwight E. Bishop. **40**: 108—1966

Transduction of boundary-layer noise by a rectangular panel. Pritchard H. White. **40**: 1354—1966

Letters to the Editor

Energy spectral density of the sonic boom. J. R. Young. **40**: 496—1966

Technical Notes and Research Briefs

Aircraft Noise Measurement, Evaluation and Control. G. Arneson. **40**: 1567—1966

More jet noise. **40**: 1565—1966

Noise suppressor for ground tests on battle planes. **40**: 1565—1966

Abstracts

Acoustic simulation of response of aerospace-vehicle skin structure to boundary-layer turbulence. Robert W. White and Malcolm J. Crocker. **40**: 1266—1966

Conversion of Lighthill's equation on jet-noise generation to an impedance concept. Irvin P. Vatz. **40**: 1274—1966

Defining the induced vibration of a space vehicle during flight. David Alan Bies. **40**: 1270—1966

Duration of flyover noise level during takeoff and landing. Edward A. Ilkcagla and Alan H. Marsh. **40**: 1254—1966

Effects of pressure gradients on turbulent boundary-layer wall-pressure fluctuations. Howard H. Schloemer. **40**: 1254—1966

Experimental aids for predicting structural response to sonic booms. Richard L. Lowery. **40**: 1270—1966

Generation of acoustic-duct modes by internal sources. C. L. Morfey. **40**: 1249—1966

Interpretation of wall-pressure measurements under a turbulent boundary layer. K. L. Chandiramani. **40**: 1264—1966

Launch-vehicle in-flight acoustic-environment predictions. B. W. George. **40:** 1273—1966
Measured variation of acoustic parameters with altitude. Richard N. Tedrick and James R. Alexander. **40:** 1273—1966
Measurements of pressure fluctuations in a turbulent shear flow. R. C. Potter. **40:** 1255—1966
Microphone rise-time response to a progressive shock wave. R. Brown, T. E. Siddon, and John J. Van Houten. **40:** 1259—1966
Noise control of on-board auxiliary power units for aircraft use. Vernon E. Callaway. **40:** 1249—1966
Noise environments encountered within two- and four-engine-powered fixed-wing aircraft: Influence of power plant and power plant-to-vehicle matings on the character of internal noise. Donald C. Gasaway. **40:** 1254—1966
Noise source for acoustical modeling. Bonard Morse. **40:** 1274—1966
Possible mechanism for the surface-pressure fluctuations beneath turbulent boundary layers. Martin V. Lowson. **40:** 1264—1966
Reduction of aircraft noise measured in several single-family houses. Dwight E. Bishop. **40:** 1246—1966
Relation between turbulent-flow structure and wall-pressure fluctuations in a turbulent boundary layer. William W. Willmarth. **40:** 1265—1966
Response of flexible panel to turbulence. Lucio Maestrello. **40:** 1265—1966
Study of acoustical treatments for jet-engine nacelles. Alan H. Marsh. **40:** 1249—1966
Transient response of a rectangular plate coupled with a Helmholtz resonator. G. D. Whitehouse and Richard L. Lowery. **40:** 1270—1966
Turbulent boundary layer to space-flight vehicle. Richard H. Lyon and K. L. Chandiramani. **40:** 1265—1966
Use of acoustical modeling in airport-noise studies. Duane R. Simmons. **40:** 1254—1966
Use of building barriers for airport-neighborhood noise control. Paul S. Veneklasen. **40:** 1254—1966

8 STANDARDS

8.1 General, Unclassified

Letters to the Editor
Reference pressure for sound-pressure level. Robert W. Young. **40:** 728—1966
Standard reference pressure for underwater sound. Laurence Batchelder. **40:** 727—1966

Technical Notes and Research Briefs
New American Standard for microphone calibration. **40:** 505—1966

News
Projects under ASA Sectional Committee on Mechanical and Shock and Vibration, S2. **40:** 931—1966
Standards Notes. **40:** 262, 931, 1206, 1570—1966

9 SPEECH COMMUNICATION

9.1 General, Unclassified

Technical Notes and Research Briefs
A New Artificial Mouth. Peter Wilhjelm. **40:** 1567—1966

News
Speech Communications Research Laboratory opened. **40:** 933—1966

9.2 Anatomy and Physiology of the Larynx and Vocal Tract

Technical Notes and Research Briefs
Device clarifies helium speech from *SEALAB II.* **40:** 921—1966

Abstracts
Breathing mixture and depth as separate effects on helium speech. Louis J. Gerstman, George R. Gamertsfelder, and Arnold Goldberger. **40:** 1283—1966
Dynamic articulatory model of speech production. William L. Henke. **40:** 1271—1966
Electromyographic-cinéfluorographic investigation of velar function during speech production. James F. Lubker and James F. Curtis. **40:** 1272—1966
Model for specification of the vocal-tract area function. Cecil H. Coker and Osamu Fujimara. **40:** 1271—1966
Pattern of air flow out of the mouth during speech. H. L. Lane, J. C. Catford, R. Oster, F. E. O'Donnell, and T. Rand. **40:** 1272—1966
Some relations between articulator movement and motor control in consonant–vowel–consonant monosyllables. Peter F. MacNeilage, Joseph L. De Clerk, and Sidney I. Silverman. **40:** 1272—1966

9.3 Acoustic Analysis of Speech

Papers
Acoustical description of syllabic nuclei: an interpretation in terms of a dynamic model of articulation. Kenneth N. Stevens, Arthur S. House, and Allan P. Paul. **40:** 123—1966
Analysis of speech in a helium–oxygen mixture under pressure. D. J. MacLean. **40:** 625—1966
High-speed sound spectrograph. A. J. Presti. **40:** 628—1966
Implementation of a pitch extractor of the double-spectrum-analysis type. Mark R. Weiss, Reinhold P. Vogel, and Cyril M. Harris. **40:** 657—1966
Improving naturalness and intelligibility of helium–oxygen speech, using vocoder techniques. Roger M. Golden. **40:** 621—1966
New correlation vocoder. H. M. Christiansen, L. Schweizer, A. Séthy, and F. Hoffenreich. **40:** 614—1966
Segmentation of speech sounds. D. R. Reddy. **40:** 307—1966

Abstracts
Approach to computer speech recognition by direct analysis of the speech wave. D. R. Reddy. **40:** 1273—1966
Breathing mixture and depth as separate effects on helium speech. Louis J. Gerstman, George R. Gamertsfelder, and Arnold Goldberger. **40:** 1283—1966
Computer-simulated cepstrum pitch detection for vocoder excitation. A. Michael Noll. **40:** 1241—1966
Dimensions in the spectra of speech vowels. R. Plomp. **40:** 1283—1966
Effects of low-pass filtering on perception of consonant clusters. Patti Grubb. **40:** 1282—1966

Efficient coding of vocoder channel signals using linear transformations. William R. Crowther and Charles M. Rader. **40:** 1242—1966
Efficient coding of vocoder pitch periods, using variable-length coding. William R. Crowther and Charles M. Rader. **40:** 1242—1966
Evaluation of a method for measuring conversational speech-activity patterns. S. Pruzansky. **40:** 1242—1966
Experimental cepstrum pitch detector for use in a 2400-bit/sec channel vocoder. James M. Kelly and Richard N. Kennedy. **40:** 1241—1966
Machine-aided formant determination for speech synthesis. William J. Strong. **40:** 1272—1966
Physical correlates of perceived acoustic traits. William D. Voiers. **40:** 1282—1966
Speech band compression by analytic-signal rooting. M. R. Schroeder, J. L. Flanagan, and E. A. Lundry. **40:** 1242—1966

Book Reviews
Speech Analysis Synthesis and Perception (Kommunikation und Kybernetik in Einzeldarstellungen). J. L. Flanagan. (Reviewed by Gunnar Fant.) **40:** 515—1966

9.4 Speech Synthesis

Papers
Improving naturalness and intelligibility of helium-oxygen speech, using vocoder techniques. Roger M. Golden. **40:** 621—1966
New correlation vocoder. H. M. Christiansen, L. Schweizer, A. Séthy, and F. Hoffenreich. **40:** 614—1966

Abstracts
Computer-simulated cepstrum pitch detection for vocoder excitation. A. Michael Noll. **40:** 1241—1966
Effects of transmission delay on the fine temporal structure of conversation. Peter D. Bricker. **40:** 1242—1966
Efficient coding of vocoder channel signals using linear transformations. William R. Crowther and Charles M. Rader. **40:** 1242—1966
Efficient coding of vocoder pitch periods, using variable-length coding. William R. Crowther and Charles M. Rader. **40:** 1242—1966
Evaluation of a method for measuring conversational speech-activity patterns. S. Pruzansky. **40:** 1242—1966
Experimental cepstrum pitch detector for use in a 2400-bit/sec channel vocoder. James M. Kelly and Richard N. Kennedy. **40:** 1241—1966
Machine-aided formant determination for speech synthesis. William J. Strong. **40:** 1272—1966
Nonlinear time compression and time normalization of speech. Suzanne L. Hanauer and M. R. Schroeder. **40:** 1243—1966
Speech band compression by analytic-signal rooting. M. R. Schroeder, J. L. Flanagan, and E. A. Lundry. **40:** 1242—1966
Speech synthesis by state simulation. Lawrence R. Rabiner. **40:** 1272—1966
Time compression and expansion of recorded speech. Roger M. Golden. **40:** 1243—1966
Vocoder system for commercial telephone speech. R. L. Miller. **40:** 1241—1966

Book Reviews
Speech Analysis Synthesis and Perception (Kommunikation und Kybernetik in Einzeldarstellungen). J. L. Flanagan. (Reviewed by Gunnar Fant.) **40:** 515—1966

9.5 Perception of Speech and Speechlike Sounds. (See also 4.15.)

Papers
Crosslanguage study of perceptual confusion of plosive phonemes in two conditions of distortion. Sadanand Singh. **40:** 635—1966
Effect of noise, system gain, and assigned task on talking levels in loudspeaker communication. Mark B. Gardner. **40:** 955—1966
Effects of stimulus content and duration on Talker identification. P. D. Bricker and Sandra Pruzansky. **40:** 1441—1966
Information in certain multidimensional sounds. Robert B. Chaney, Jr., and J. C. Webster. **40:** 447—1966
Perception of segments of English-spoken consonant-vowel syllables. William A. Grimm. **40:** 1454—1966
Perception of segments of VCCV utterances. S. E. G. Öhman. **40:** 979—1966

Abstracts
Bionics approach to speech-pattern recognition. J. Ryland Mundie. **40:** 1282—1966
Breathing mixture and depth as separate effects on helium speech. Louis J. Gerstman, George R. Gamertsfelder, and Arnold Goldberger. **40:** 1283—1966
Speaker verification. W. D. Chapman and Kung-Pu Li. **40:** 1282—1966
Speech-loudness judgments: a multidimensional analysis. B. J. McDermott. **40:** 1255—1966
Voice classification by hierarchical clustering. Herman R. Silbiger. **40:** 1282—1966

9.6 Measures of Spech Intelligibility, Quality, Information Content

Papers
Crosslanguage study of perceptual confusion of plosive phonemes in two conditions of distortion. Sadanand Singh. **40:** 635—1966
Speech intelligibility for space vehicles, using nitrogen or helium as the inert gas. Julian P. Cooke and Sarah E. Beard. **40:** 1450—1966

Abstracts
Effect of the closed-response format on modified rhyme-test scores. Carl E. Williams, B. Woods, and Michael H. L. Hecker. **40:** 1256—1966
Effects of low-pass filtering on perception of consonant clusters. Patti Grubb. **40:** 1282—1966
Effects of transmission delay on the fine temporal structure of conversation. Peter D. Bricker. **40:** 1242—1966
Evaluation of a method for measuring conversational speech-activity patterns. S. Pruzansky. **40:** 1242—1966
Further rhyme-test modification for diagnostic articulation testing. John D. Griffiths. **40:** 1256—1966

Is the intelligibility of alternated speech related to rate or place of alternation? George W. Hughes, Arthur S. House, D. P. Goldstein, and John A. Rupf. **40:** 1283—1966
Physical correlates of perceived acoustic traits. William D. Voiers. **40:** 1282—1966
Relation between intelligibility scores for various test methods and different types of speech distortion. Carl E. Williams and Michael H. L. Hecker. **40:** 1256—1966
Speaker verification. W. D. Chapman and Kung-Pu Li. **40:** 1282—1966
Voice classification by hierarchical clustering. Herman R. Silbiger. **40:** 1282—1966

9.7 Phonetics, Linguistics, Statistics of Language

Papers
Acoustical description of syllabic nuclei: an interpretation in terms of a dynamic model of articulation. Kenneth N. Stevens, Arthur S. House, and Allan P. Paul. **40:** 123—1966
Crosslanguage study of perceptual confusion of plosive phonemes in two conditions of distortion. Sadanand Singh. **40:** 635—1966

Abstracts
Acoustic features in the manner differentiation of Korean stop consonants. Raymond S. Weitzman and Mieko S. Han. **40:** 1272—1966
Approach to computer speech recognition by direct analysis of the speech wave. D. R. Reddy. **40:** 1273—1966
Dynamic articulatory model of speech production. William L. Henke. **40:** 1271—1966
Electromyographic-cinéfluorographic investigation of velar function during speech production. James F. Lubker and James F. Curtis. **40:** 1272—1966
Model for specification of the vocal-tract area function. Cecil H. Coker and Osamu Fujimura. **40:** 1271—1966
Pattern of air flow out of the mouth during speech. H. L. Lane, J. C. Catford, R. Oster, F. E. O'Donnell, and T. Rand. **40:** 1272—1966
Relation of descriptive phonetics to research in speech communication. Gordon E. Peterson. **40:** 1271—1966
Some relations between articulator movement and motor control in consonant–vowel–consonant monosyllables. Peter F. MacNeilage, Joseph L. De Clerk, and Sidney I. Silverman. **40:** 1272—1966
Speech synthesis by state simulation. Lawrence R. Rabiner. **40:** 1272—1966

9.8 Systems for Speech Transmission. Analysis-Synthesis Telephony, Speech Coding

Papers
Effect of noise, system gain, and assigned task on talking levels in loudspeaker communication. Mark B. Gardner. **40:** 955—1966
Implementation of a pitch extractor of the double-spectrum-analysis type. Mark R. Weiss, Reinhold P. Vogel, and Cyril M. Harris. **40:** 657—1966
Improving naturalness and intelligibility of helium–oxygen speech, using vocoder techniques. Roger M. Golden. **40:** 621—1966
New correlation vocoder. H. M. Christiansen, L. Schweizer, A. Séthy, and F. Hoffenreich. **40:** 614—1966

Technical Notes and Research Briefs
Device clarifies helium speech from *SEALAB II.* **40:** 921—1966

Abstracts
Effects of low-pass filtering on perception of consonant clusters. Patti Grubb. **40:** 1282—1966
Effects of transmission delay on the fine temporal structure of conversation. Peter D. Bricker. **40:** 1242—1966
Efficient coding of vocoder channel signals using linear transformations. William R. Crowther and Charles M. Rader. **40:** 1242—1966
Implementation of a self-adapting echo canceler. A. J. Presti. **40:** 1255—1966
Implications of automatic-equalizer technology for the problem of echo suppression. H. R. Rudin. **40:** 1255—1966
Is the intelligibility of alternated speech related to rate or place of alternation? George W. Hughes, Arthur S. House, D. P. Goldstein, and John A. Rupf. **40:** 1283—1966
Nonlinear time compression and time normalization of speech. Suzanne L. Hanauer and M. R. Schroeder. **40:** 1243—1966
Physical correlates of perceived acoustic traits. William D. Voiers. **40:** 1282—1966
Speech band compression by analytic-signal rooting. M. R. Schroeder, J. L. Flanagan, and E. A. Lundry. **40:** 1242—1966
Subjective effects of noise and loss in telephone transmission. Tapas K. Sen. **40:** 1256—1966
Subjective evaluation of delay and echo suppressors in telephone communication. Akira Miura, Rikio Sato, and Kuniichi Nagata. **40:** 1255—1966
Theory and computer simulation of a self-adapting echo canceler. Man Mohan Sondhi. **40:** 1255—1966
Time compression and expansion of recorded speech. Roger M. Golden. **40:** 1243—1966
Voice classification by hierarchical clustering. Herman R. Silbiger. **40:** 1282—1966

Patents
Data compressing system. Robert N. Skalwold. **40:** 945—1966
Random access talking machine with intensity modulated film. Robert B. Greenly. **40:** 945—1966
Sound transmitting device. Oskar Warns. **40:** 1234—1966
System for multiple output of spoken messages. Walter K. French. **40:** 945—1966

9.9 Instruments for Speech Measurement

Papers
High-speed sound spectrograph. A. J. Presti. **40:** 628—1966

9.10 Machine Recogntiion of Speech

Papers
Effects of stimulus content and duration on Talker identification. P. D. Bricker and Sandra Pruzansky. **40:** 1441—1966
Experimental studies in speaker verification, using an adaptive system. K. P. Li, J. E. Dammann, and W. D. Chapman. **40:** 966—1966
Segmentation of speech sounds. D. R. Reddy. **40:** 307—1966

Abstracts

Approach to computer speech recognition by direct analysis of the speech wave. D. R. Reddy. **40**: 1273—1966

Auditory afterimages in gated noise. Robert C. Lummis, Newman Guttman, and Donald E. Bock. **40**: 1240—1966

Machine-aided formant determination for speech synthesis. William J. Strong. **40**: 1272—1966

Patents

Intelligence conversion system. William C. Dersch. **40**: 305—1966

Noise discriminator. Jack Shirman. **40**: 1234—1966

Waveform identification system. Robert J. Bibbero. **40**: 945—1966

10 ULTRASONICS

10.1 General, Unclassified

Papers

Studies of the threshold-of-cavitation noise in liquid helium. R. D. Finch, Taylor G. J. Wang, R. Kagiwada, M. Barmatz, and Isadore Rudnick. **40**: 211—1966

Technical Notes and Research Briefs

Selected Studies in Microwave Acoustics. H. J. Shaw. **40**: 506, 1567—1966

Patents

Mass soldering apparatus and method using vibratory energy. Ernst A. Gutbier. **40**: 1581—1966

Book Reviews

Ultrasonic Energy—Biological Investigations and Medical Applications. Elizabeth Kelly, Editor. (Reviewed by Harlow W. Ades.) **40**: 268—1966

News

IEEE Ultrasonics Symposium. **40**: 263—1966

Microwave acoustics. **40**: 511—1966

1966 Ultrasonics Symposium. **40**: 511—1966

Sensory devices for the blind. **40**: 1574—1966

Ultrasonics for Industry Conference and Exhibition. **40**: 740—1966

Ultrasonic Spectroscopy Symposium. **40**: 261—1966

Ultrasonics Symposium. **40**: 1571—1966

10.2 Physical Effects of Ultrasonic Waves. Optical Diffraction. Ultrasonic Processing

Papers

Brillouin scattering and thermal relaxation in benzene. C. Leonard O'Connor and Joseph P. Schlupf. **40**: 663—1966

Intensity ruby laser-induced acoustic impulses in liquids. E. F. Carome, C. E. Moeller, and N. A. Clark. **40**: 1462—1966

Studies of the threshold-of-cavitation noise in liquid helium. R. D. Finch, Taylor G. J. Wang, R. Kagiwada, M. Barmatz, and Isadore Rudnick. **40**: 211—1966

Ultrasonic and hypersonic studies of vibrational relaxation in benzene. Joseph L. Hunter, E. F. Carome, Henry D. Dardy, and J. A. Bucaro. **40**: 313—1966

Letters to the Editor

Measurement of the room-temperature microwave ultrasonic attenuation of Z-cut quartz by Brillouin scattering of light. C. D. W. Wilkinson and D. E. Caddes. **40**: 498—1966

Technical Notes and Research Briefs

An Evaluation of the Ultrasonic Machining Process. L. D. Wells. **40**: 507—1966

Investigation of Microwave and Sonic Methods for Measuring Liquid Level and Flow Rate. K. R. Carr and J. V. Clark. **40**: 507—1966

Abstracts

Brillouin scattering in water. The Landau-Placzek ratio. C. Leonard O'Connor and Joseph P. Schlupf. **40**: 1260—1966

Formation of ultrasonic images by holographic techniques. R. K. Mueller and N. K. Sheridon. **40**: 1284—1966

Laser-beam-induced ultrasonic waves in glass-II. William W. Lester. **40**: 1260—1966

Lateral acoustic instability. Michael Schulz and Uno Ingard. **40**: 1269—1966

Light diffraction by ultrasonic surface waves. Walter G. Mayer and G. B. Lamers. **40**: 1261—1966

Patents

Sonic refining apparatus. Caperton B. Horsley. **40**: 1234—1966

Ultrasonic methods of testing. Roy S. Sharpe and Sydney A. Reading. **40**: 538—1966

10.3 Ultrasonic Instruments. (See also 5.18.)

Papers

Acoustical interferometer for velocity and attenuation measurements in liquids over wide frequency and temperature range. R. W. Leonard and H. Seguin. **40**: 1467—1966

Finite-difference method for the investigation of the vibrations of solids and the evaluation of the equivalent-circuit characteristics of piezoelectric resonators. III. Contour modes of rectangular plates of Y-cut quartz. P. Lloyd and M. Redwood. **40**: 82—1966

Group-velocity dispersion due to pulse reflection from a frequency-dependent boundary impedance. James N. Lange. **40**: 998—1966

Measurements of attenuation and dispersion of sound by an aerosol. Samuel Temkin and Richard A. Dobbins. **40**: 1016—1966

New methods for measuring ultrasonic attenuation. Charles E. Fitch, Jr. **40**: 989—1966

Third-order elastic moduli of polycrystalline metals from ultrasonic velocity measurements. R. T. Smith, R. Stern, and R. W. B. Stephens. **40**: 1002—1966

Ultrasonic-pulse propagation through films, foils, fibers, and whiskers. I. L. Gelles. **40**: 138—1966

Technical Notes and Research Briefs

Ultrasonic spectacles for the blind. **40**: 1564—1966

Abstracts

Acoustical dispersive delay lines for pulse compression by fluid layered media. Pierre Tournois. **40**: 1268—1966

Acoustical dispersive delay lines for pulse compression by solid layered media. Pierre Tournois. **40**: 1268—1966

Acoustical interferometer for cryogenic liquids. R. W. Leonard, H. Seguin, and J. S. Imai. **40**: 1268—1966
Design of an ultrasonic whistle. Henry B. Karplus. **40**: 1259—1966
Subharmonic generation in an ultrasonic resonant cavity. M. A. Breazeale and Ross McCluney. **40**: 1262—1966

Patents

Acoustic flaw detection system. William J. Fry. **40**: 538—1966
Apparatus for drying and treating hair or other fibers via ultrasonics. Ralph W. Goble. **40**: 945—1966
Apparatus for generating ultrasonic vibrations in liquids. Noburo Sasaki. **40**: 945—1966
Apparatus for measuring particles in liquids. William C. McGaughey. **40**: 1582—1966
Apparatus for the acoustic treatment of liquids. William K. Fortman. **40**: 305—1966
Apparatus for the mechanical production of acoustic vibrations for use in emulsification, dispersion or like process. Eric C. Cottell and John E. Goodman. **40**: 305—1966
Apparatus for the ultrasonic testing of wheels. Edward T. Graboski. **40**: 1581—1966
Apparatus for ultrasonic flaw testing. Ivan L. Joy. **40**: 772—1966
Electrical system and method for protecting premises subject to varying ambient conditions. Vincent T. McDonough, Howard Pearson, and Francis C. Evans. **40**: 306—1966
High scan rate ultrasonic inspection system. Elliott A. Henry. **40**: 946—1966
Liquid lens ultrasonic beam controlling device. William C. McGaughey. **40**: 538—1966
Method and apparatus for determining flaw locations. Ben Wade Oakes Dickinson, III. **40**: 771—1966
Sonic atomizer for liquids. Robert J. Lang and Jerrold D. Atlas. **40**: 305—1966
Temperature compensation for transmission through liquid. Willard S. Rafferty and Raymond E. Sansom. **40**: 306—1966
Transducer plate for high acoustical–mechanical energy transfer to liquids. Milton S. Plesset and Robert F. Devine. **40**: 306—1966
Ultrasonic apparatus. William R. Van der Veer. **40**: 946—1966
Ultrasonic cleaning machine. Louis Robert Jeffrey, Jr .**40**: 306—1966
Ultrasonic degasifying device. Stanley E. Jacke. **40**: 538—1966
Ultrasonic degassing of multiple emulsions in a vertical unit. Arthur L. Carter and Jack A. Van Ingen. **40**: 1234—1966
Ultrasonic grinding apparatus. Richard N. Roney. **40**: 945—1966
Ultrasonic inspection apparatus. John V. Cowan. **40**: 946—1966
Ultrasonic inspection transducer assembly. Larry O. Stebbins. **40**: 539—1966
Ultrasonic probe. Paul J. McInnish. **40**: 305—1966
Ultrasonic pulse-echo system for internal exploration. Manfred E. Clynes. **40**: 538—1966
Ultrasonic spray apparatus. Alvin A. Snaper. **40**: 1235—1966
Ultrasonic test apparatus and method. James F. McNulty. **40**: 1235—1966
Ultrasonic test apparatus for producing cross sections of solid bodies. George A. D. Gordon. **40**: 539—1966
Ultrasonic testing of metal bodies. Philip C. Barr and Daniel M. Taylor. **40**: 1235—1966
Ultrasonic testing system. Elliott A. Henry. **40**: 946—1966
Ultrasonic transducer. Dwight J. Evans. **40**: 1235—1966
Ultrasonic vibration generators. Sidney R. Tomes. **40**: 772—1966

10.4 **Gases, Ultrasonic Velocity, Dispersion, Absorption. (See also 11.3.)**

Papers

Absorption of sound in air versus humidity and temperature. Cyril M. Harris. **40**: 148—1966
Analysis of quadripole methods for the velocity of sound. I. C. Romer, Jr., R. A. Gaggioli, and A. S. El-Hakeem. **40**: 86—1966
Attenuation and dispersion of sound by particulate-relaxation processes. Samuel Temkin and Richard A. Dobbins. **40**: 317—1966
Interaction of acoustic waves with solid–gas and liquid–vapor interfaces. J. W. Porter. **40**: 1478—1966
Measurements of attenuation and dispersion of sound by an aerosol. Samuel Temkin and Richard A. Dobbins. **40**: 1016—1966
Pulse technique for measuring the scattering of sound from turbulence. William Baerg and W. H. Schwarz. **40**: 133—1966

Abstracts

Acoustic amplification in a plasma. Uno Ingard and Michael Schulz. **40**: 1261—1966
Acoustic ion waves at frequencies comparable to the ion-plasma frequency. G. M. Sessler. **40**: 1260—1966
Effect of large percentages of water vapor on the ultrasonic absorption in carbon dioxide. R. W. Higgs and R. H. Torborg. **40**: 1269—1966
Sound absorption and velocity in sulfur dioxide/argon mixtures. F. Douglas Shields. **40**: 1269—1966
Ultrasonic absorption and velocity dispersion in diatomic gases at high temperature. Garnett L. Hill and T. G. Winter. **40**: 1269—1966

10.5 **Liquids, Ultrasonic Velocity, Dispersion, Absorption. (See also 13.2 and 13.3.)**

Papers

Acoustical interferometer for velocity and attenuation measurements in liquids over wide frequency and temperature range. R. W. Leonard and H. Seguin. **40**: 1467—1966
Brillouin scattering and thermal relaxation in benzene. C. Leonard O'Connor and Joseph P. Schlupf. **40**: 663—1966
Experimental study of the fundamental-frequency component of a plane, finite-amplitude wave. William W. Lester. **40**: 847—1966
Intensity ruby laser-induced acoustic impulses in liquids. E. F. Carome, C. E. Moeller, and N. A. Clark. **40**: 1462—1966
Interaction of acoustic waves with solid–gas and liquid–vapor interfaces. J. W. Porter. **40**: 1478—1966

Ultrasonic and hypersonic studies of vibrational relaxation in benzene. Joseph L. Hunter, E. F. Carome, Henry D. Dardy, and J. A. Bucaro. **40**: 313—1966

Ultrasonic diffraction loss and phase change in anisotropic materials. Emmanuel P. Papadakis. **40**: 863—1966

Abstracts

Brillouin scattering in water. The Landau–Placzek ratio. C. Leonard O'Connor and Joseph P. Schlupf. **40**: 1260—1966

Superfluid Helmholtz resonators. Michael A. Kriss, Kenneth A. Shapiro, and Isadore Rudnick. **40**: 1261—1966

Ultrasonic investigation in electrolytes. Konrad Tamm. **40**: 1260—1966

Ultrasonic investigation of the lambda point of liquid helium. M. Barmatz and Isadore Rudnick. **40**: 1261—1966

10.6 Solids, Ultrasonic Velocity, Dispersion, Absorption

Papers

Acoustic-waveform distortion due to nonlinear elastic behavior in cadmium sulfide. Arthur Eden Lord, Jr., and B. B. Chick. **40**: 1473—1966

Elastic properties of NiTi and a function of temperature. S. Spinner and A. G. Rozner. **40**: 1009—1966

Group-velocity dispersion due to pulse reflection from a frequency-dependent boundary impedance. James N. Lange. **40**: 998—1966

Interaction of acoustic waves with solid–gas and liquid–vapor interfaces. J. W. Porter. **40**: 1478—1966

New methods for measuring ultrasonic attenuation. Charles E. Fitch, Jr. **40**: 989—1966

Relation between third-order elastic moduli and the thermal attenuation of ultrasonic waves in nonconducting and metallic crystals. Warren P. Mason and T. B. Bateman. **40**: 852—1966

Third-order elastic moduli of polycrystalline metals from ultrasonic velocity measurements. R. T. Smith, R. Stern, and R. W. B. Stephens. **40**: 1002—1966

Ultrasonic-pulse propagation through films, foils, fibers, and whiskers. I. L. Gelles. **40**: 138—1966

Letters to the Editor

Elastic constants of magnesium aluminate spinel. M. F. Lewis. **40**: 728—1966

Measurement of the room-temperature microwave ultrasonic attenuation of Z-cut quartz by Brillouin scattering of light. C. D. W. Wilkinson and D. E. Caddes. **40**: 498—1966

Abstracts

Laser-beam-induced ultrasonic waves in glass-II. William W. Lester. **40**: 1260—1966

Ultrasonic absorption in potassium. Giovan G. Natale, Taylor G. J. Wang, Richard Stern, and Isadore Rudnick. **40**: 1261—1966

Ultrasonic attenuation in normal-conducting and mixed and Meissner superconducting states of niobium. R. Kagiwada, M. Levy, and Isadore Rudnick. **40**: 1261—1966

Ultrasonic measurement of elastic and piezoelectric coefficients of lithium tantalate. R. T. Smith. **40**: 1269—1966

10.9 Biological Effects of Ultrasonic Waves

Papers

Deformation and motion produced in isolated living cells by localized ultrasonic vibration. Walter L. Wilson, Floyd J. Wiercinski, Wesley L. Nyborg, R. M. Schnitzlen, and F. J. Sichel. **40**: 1363—1966

Letters to the Editor

Ultrasonic irradiation of enzyme solutions. R. M. Macleod and Floyd Dunn. **40**: 1202—1966

10.10 Ultrasonic Relaxation Processes in Solids, Liquids, and Gases

Papers

Absorption of sound in air versus humidity and temperature. Cyril M. Harris. **40**: 148—1966

Attenuation and dispersion of sound by particulate-relaxation processes. Samuel Temkin and Richard A. Dobbins. **40**: 317—1966

Brillouin scattering and thermal relaxation in benzene. C. Leonard O'Connor and Joseph P. Schlupf. **40**: 663—1966

Measurements of attenuation and dispersion of sound by an aerosol. Samuel Temkin and Richard A. Dobbins. **40**: 1016—1966

Relation between third-order elastic moduli and the thermal attenuation of ultrasonic waves in nonconducting and metallic crystals. Warren P. Mason and T. B. Bateman. **40**: 852—1966

Abstracts

Sound absorption and velocity in sulfur dioxide/argon mixtures. F. Douglas Shields. **40**: 1269—1966

Ultrasonic absorption and velocity dispersion in diatomic gases at high temperature. Garnett L. Hill and T. G. Winter. **40**: 1269—1966

11 RADIATION AND SCATTERING

11.1 General, Unclassified

Papers

Sound transmission through a finite, closed, cylindrical shell. Pritchard H. White. **40**: 1124—1966

11.1.5 Analogies

Abstracts

Mechanical and acoustic mobility of a complex aerospace structure utilizing digital data-reduction techniques. Daniel J. Bozich and Louis C. Sutherland. **40**: 1276—1966

Resistive electrical networks for the study of shell vibrations. O. A. Shinaishin. **40**: 1277—1966

11.2 Reflection, Refraction, Diffraction, and Interference of Sound Waves

Papers

Acoustic scattering from fluid spheres. H. G. Frey and R. R. Goodman. **40**: 417—1966

Changes in velocity of an elastic pulse owing to geometrical diffraction. Arthur Edson Lord, Jr. **40**: 163—1966

Group-velocity dispersion due to pulse reflection from a frequency-dependent boundary impedance. James N. Lange. **40**: 998—1966

Long-wavelength scattering by hard spheroids. James E. Burke. **40**: 325—1966
Measurements of volume scattering from a deep scattering layer. Barry A. Gold. **40**: 688—1966
Omnidirectional scattering of acoustic waves from rough surfaces of known statistics. R. K. Moore and B. E. Parkins. **40**: 170—1966
Pulse technique for measuring the scattering of sound from turbulence. William Baerg and W. H. Schwarz. **40**: 133—1966
Reverberation from deep scattering layers in the western North Atlantic. R. P. Chapman and J. R. Marshall. **40**: 405—1966
Reverberation under Arctic sea-ice. J. R. Brown and D. W. Brown. **40**: 399—1966
Scattering and reflection by elliptically striated surfaces. J. E. Burke and V. Twersky. **40**: 883—1966
Scattering by an array of cylinders as a function of surface impedance. T. F. W. Embleton. **40**: 667—1966
Sea-surface roughness and acoustic reverberation—an operational model. J. J. Martin. **40**: 697—1966
Signal-waveform distortion caused by reflection off lossy-layered bottoms. Albert H. Nuttall and Benjamin F. Cron. **40**: 1094—1966
Transmission of sound through a circular membrane in a plane wall. Philip M. Morse. **40**: 354—1966

Letters to the Editor

Acoustic response of a circular receiver to a circular source of different radius. Kazunari Yamada and Yahei Fujii. **40**: 1193—1966
Acoustic response of a rectangular receiver to a rectangular source. Yahei Fujii and Kazunari Yamada. **40**: 249—1966
Baffled piston radiator: expansion of potential in far, paraxial field. Martin Greenspan. **40**: 251—1966
Fine structure of acoustic fields scattered from the ocean bottom. Burton G. Hurdle. **40**: 255—1966
Underwater acoustic scattering from Arctic ice. R. H. Mellen. **40**: 1200—1966

Technical Notes and Research Briefs

Acoustic properties of parabolic reflectors. Randolph Scott Little. **40**: 919—1966

Abstracts

Acoustic-wave fluctuations in a random medium with spherical object inclusion. G. C. Knollman. **40**: 1280—1966
Crosscorrelation of dispersive waves. Pritchard H. White. **40**: 1276—1966
Diffraction of acoustic transients in air. Wayne M. Wright. **40**: 1269—1966
Investigation of microphone nonlinearities, using the high-intensity pistonphone. H. E. Dahlke and George T. Kantargés. **40**: 1248—1966
Numerical solution for transient scattering from a hard surface of arbitrary shape. Kenneth M. Mitzner. **40**: 1280—1966
Scattering by two-dimensional array of identical rigid spheres. Mary L. Harbold and Bruce Steinberg. **40**: 1280—1966
Sound propagation in a shadow zone. Robert C. Polly. **40**: 1273—1966
Transient response spectra of coupled acoustical resonators. N. N. Reddy and Richard L. Lowery. **40**: 1280—1966

11.3 Velocity and Attenuation of Sound Waves. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)

Papers

Absorption of sound in air versus humidity and temperature. Cyril M. Harris. **40**: 148—1966
Acoustic experiment to determine the composition of an unknown planetary atmosphere. R. A. Hanel and M. G. Strange. **40**: 896—1966
Analysis of quadripole methods for the velocity of sound. I. C. Romer, Jr., R. A. Gaggioli, and A. S. El-Hakeem. **40**: 86—1966
Attenuation of torsional waves in Teflon. R. W. Leonard. **40**: 160—1966
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Refined tube method for measuring the sound wavelength in gases—principles of operation. A. S. El-Hakeem, R. A. Gaggioli, and I. C. Romer, Jr. **40**: 1485—1966
Steady-state wave propagation in infinite bars of noncircular cross section. Nicholas J. Nigro. **40**: 1501—1966
Ultrasonic diffraction loss and phase change in anisotropic materials. Emmanuel P. Papadakis. **40**: 863—1966
Ultrasonic-pulse propagation through films, foils, fibers, and whiskers. I. L. Gelles. **40**: 138—1966
Wave interaction of a viscoelastic medium with an elastic cylindrical shell. Fred C. Finlayson and Yechiel Shulman. **40**: 1495—1966

Letters to the Editor

Existence of longitudinal waves. C. Truesdell. **40**: 729—1966
Existence of longitudinal waves in anisotropic media. I. I. Kolodner. **40**: 730—1966
Fish as a possible cause of low-frequency acoustic attenuation in deep water. D. E. Weston. **40**: 1558—1966
Measurement of the room-temperature microwave ultrasonic attenuation of Z-cut quartz by Brillouin scattering of light. C. D. W. Wilkinson and D. E. Caddes. **40**: 498—1966

Abstracts

Crosscorrelation of dispersive waves. Pritchard H. White. **40**: 1276—1966
Excess acoustic absorption in closed tubes as compared to identical open tubes. T. G. Winter. **40**: 1268—1966
Reduction of sound generated from a plate boundary layer by a vibrating wall. O. H. Wehrmann. **40**: 1281—1966

11.4 Waves in Bounded Media

Papers

Axially symmetric waves in hollow, elastic rods: Part I. H. D. McNiven, A. H. Shah, and J. L. Sackman. **40**: 784—1966
Experiment on sound propagation in shallow water under isovelocity conditions. A. C. Kibblewhite and R. N. Denham. **40**: 1337—1966

Nonlinear resonance in stretched strings with viscous damping. G. V. Anand. **40**: 1517—1966
Propagation of harmonic flexural waves in an infinite elastic rod of elliptical cross section. P. K. Wong, J. Miklowitz, and R. A. Scott. **40**: 393—1966
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Effect of rough boundaries on normal-model sound propagation. H. P. Bucker and Halcyon E. Morris. **40**: 252—1966

Abstracts
Circumferential waves in structurally reinforced metallic cylindrical shells in water. O. D. Grace and T. G. Goldsberry. **40** 1279—1966
Low-frequency statistics of the sound field in a reverberation chamber. George C. Maling, Jr. **40**: 1267—1966
Ray and mode dispersion for a model of the SOFAR channel. H. P. Bucker. **40**: 1243—1966
Superfluid Helmholtz resonators. Michael A. Kriss, Kenneth A. Shapiro, and Isadore Rudnick. **40**: 1261—1966
Wave propagation in a sandwich ring. M. J. Sagartz, L. M. Keer, and G. Herrmann. **40**: 1284—1966

Subtitles
Waves in bounded media. P. Lloyd and M. Redwood. **40**: 84—1966

11.5 Radiation from Vibrating Objects in Air and Other Gases. Acoustic Impedance. Sources of Sound. (See also 5.3, 12.3z, and 13.7.)

Papers
Acoustic radiation from a wobbling piston. Visvaldis Mangulis. **40**: 349—1966
Changes in velocity of an elastic pulse owing to geometrical diffraction. Arthur Edson Lord, Jr. **40**: 163—1966
Direct-energy density in transmission-loss measurements. R. J. Donato. **40**: 1—1966
Directional characteristics of vibrating circular plates and membranes. Patricio A. Laura. **40**: 1031—1966
Energy exchange between incompressible near and acoustic far field for transient sources. Miguel C. Junger. **40**: 1025—1966
Influence of fluid loading on the radiation from infinite plates below the critical frequency. G. Maidanik and E. M. Kerwin, Jr. **40**: 1034—1966
Long-wavelength scattering by hard spheroids. James E. Burke. **40**: 325—1966
Low-frequency sound radiation from slender bodies of revolution. Hartley L. Pond. **40**: 711—1966
Pressure radiated by a point-excited elastic plate. David Feit. **40**: 1489—1966
Propagation of waves from a spherical surface of time-dependent radius. Jan D. Achenbach and C. T. Sun. **40**: 877—1966
Scattering and reflection by elliptically striated surfaces. J. E. Burke and V. Twersky. **40**: 883—1966
Scattering by an array of cylinders as a function of surface impedance. T. F. W. Embleton. **40**: 667—1966
Transmission of sound through a circular membrane in a plane wall. Philip M. Morse. **40**: 354—1966
Ultrasonic diffraction loss and phase change in anisotropic materials. Emmanuel P. Papadakis. **40**: 863—1966
Vibration of a spherical shell in an acoustic medium. Sabih Hayek. **40**: 342—1966
Wave interaction of a viscoelastic medium with an elastic cylindrical shell. Fred C. Finlayson and Yechiel Shulman. **40**: 1495—1966

Letters to the Editor
Acoustic response of a circular receiver to a circular source of different radius. Kazunari Yamada and Yahei Fujii. **40**: 1193—1966
Acoustic response of a rectangular receiver to a rectangular source. Yahei Fujii and Kazunari Yamada. **40**: 249—1966
Baffled piston radiator: expansion of potential in far, paraxial field. Martin Greenspan. **40**: 251—1966
Formation of difference patterns in transducer arrays with an odd number of elements. Geoffrey L. Wilson. **40**: 915—1966
Transformation of the Helmholtz integral into a line integral. Oscar A. Lindemann. **40**: 914—1966

Abstracts
Bessel's solution for a two-tone finite-amplitude source. Duane H. Cooper. **40**: 1260—1966
Conversion of Lighthill's equation on jet-noise generation to an impedance concept. Irvin P. Vatz. **40**: 1274—1966
Mechanical and acoustic mobility of a complex aerospace structure utilizing digital data-reduction techniques. Daniel J. Bozich and Louis C. Sutherland. **40**: 1276—1966
Noise source for acoustical modeling. Bonard Morse. **40**: 1274—1966
Pressure radiated by a point-excited plate in the presence of a coating. David Feit. **40**: 1247—1966
Reduction of sound generated from a plate boundary layer by a vibrating wall. O. H. Wehrmann. **40**: 1281—1966
Spherical radiation. C. T. Molloy. **40**: 1247—1966

11.6 Wave Propagation in Tubes

Papers
Exact solutions for the propagation of two simple acoustic transients in waveguides with perfectly reflecting walls. A. B. Coppens. **40**: 331—1966
Refined tube method for measuring the sound wavelength in gases—principles of operation. A. S. El-Hakeem, R. A. Gaggioli, and I. C. Romer, Jr. **40**: 1485—1966
Resonance and sounding frequencies of the flute. John W. Coltman. **40**: 99—1966
Standing sound waves of finite amplitude. Stephen Weiner. **40**: 240—1966

Abstracts
Excess acoustic absorption in closed tubes as compared to identical open tubes. T. G. Winter. **40**: 1268—1966
Technique to predict acoustic distortion in elastic-walled liquid cylinders. Charles J. Rivera. **40**: 1260—1966

11.7 **Mathematical Theory of Wave Propagation. Ray Acoustics. (See also 11.1.5.)**

Papers

Changes in velocity of an elastic pulse owing to geometrical diffraction. Arthur Edson Lord, Jr. **40**: 163—1966

Energy density of sound in a dispersive medium. W. E. Smith. **40**: 906—1966

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Existence of longitudinal waves. C. Truesdell. **40**: 729—1966

Existence of longitudinal waves in anisotropic media. I. I. Kolodner. **40**: 730—1966

Abstracts

Diffraction of acoustic transients in air. Wayne M. Wright. **40**: 1269—1966

Further report on the transient solution for sound in a viscous fluid. David T. Blackstock. **40**: 1268—1966

Pulse distortion in a refracting medium. Peter Hirsch. **40**: 1243—1966

Ray and mode dispersion for a model of the SOFAR channel. H. P. Bucker. **40**: 1243—1966

Ray-path characteristics in a sound channel for a particular velocity-depth profile. D. F. Dence. **40**: 1243—1966

Ray propagation in a linearly moving inhomogeneous layered medium. H. S. Hayre and I. D. Tripathi. **40**: 1244—1966

Sound propagation in a shadow zone. Robert C. Polly. **40**: 1273—1966

Transmission of sound and vibration to a shroud-enclosed spacecraft. Jerome E. Manning, Richard H. Lyon, and Terry D. Scharton. **40**: 1270—1966

Patents

Fourier type mechanical amplitude transformers. Edward Eisner. **40**: 1236—1966

Torsional wave, Fourier type, mechanical amplitude transformer. Edward Eisner. **40**: 1235—1966

11.8 **Physical Effects of Sound. (See also 12.11.)**

Papers

Heat transfer across a solid–liquid interface in the presence of acoustic streaming. Robert K. Gould. **40**: 219—1966

11.9 **Sounds in the Atmosphere**

Papers

Acoustic experiment to determine the composition of an unknown planetary atmosphere. R. A. Hanel and M. G. Strange. **40**: 896—1966

Sound-ranging technique for locating supersonic missiles. Henry Rachele. **40**: 950—1966

Abstracts

Launch-vehicle in-flight acoustic-environment predictions. B. W. George. **40**: 1273—1966

Measured variation of acoustic parameters with altitude. Richard N. Tedrick and James R. Alexander. **40**: 1273—1966

12 **MECHANICAL VIBRATIONS AND SHOCK. (See also 5., 11., and 16.)**

12.1 **General, Unclassified**

Papers

Sloshing of a liquid in connected cylindrical tanks owing to U-tube free oscillations. Gordon C. K. Yeh. **40**: 807—1966

Technical Notes and Research Briefs

Analog Experiments Compare Improved Sweep Random Tests with Wide Band Random and Sweep Sonic Tests. G. B. Booth and Jens T. Broch. **40**: 1567—1966

Abstracts

Spectral character of ice vibrations in the Central Arctic Ocean from 0.1 to 100 cps. David Prentiss, Edward Davis, and Henry Kutschale. **40**: 1279—1966

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Vibrations: Theoretical Methods. Yu Chen. (Reviewed by Irwin Vigness. **40**: 942—1966

12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, 5.21.)

Subtitles

Instruments relating in vibration. Chi-Hung Mok and E. A. Murray, Jr. **40**: 387—1966

12.3i Vibration Isolators, Attenuators, and Dampers. (See also 2.11 and 5.21.)

Papers

Composite loss factors of selected laminated beams. R. A. Di Taranto and W. Blasingame. **40**: 187—1966

Generalized matrix method for the design and analysis of vibration-isolation systems. Leonard E. Smollen. **40**: 195—1966

Letters to the Editor

Vibration of a viscoelastic rod in a medium producing viscoelastic damping. S. Raynor. **40**: 915—1966

12.3p Vibration Pickups and Indicators. Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)

Papers

Electrodynamic vibration standard with a ceramic moving element. T. Dimoff. **40**: 671—1966

Abstracts

Average control for sinusoidal and random-vibration testing. Theron Usher, Jr. **40**: 1271—1966

Patents

Transducer. Richard M. Canzoneri. **40**: 946—1966

12.3v Vibration Generators. Shake Tables. (See also 5.21.)

Papers

Electrodynamic vibration standard with a ceramic moving element. T. Dimoff. **40**: 671—1966

Patents

Sonic vibration spot welder. Floyd A. Wyczalek. **40**: 539—1966

12.3z Mechanical-Impedance Measurement. (See also 5.3 and 11.5.)

Abstracts

Mechanical-impedance concepts applied to the dynamic flexural response of beams. H. E. Wieland and E. L. Hixson. **40**: 1277—1966

12.5 Shock. (See also 14.2 and 13.10.)

Papers

Conversion of electromagnetic to acoustic energy by surface heating. Luke S. Gournay. **40**: 1322—1966

12.7 Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)

Papers

Axially symmetric waves in hollow, elastic rods: Part I. H. D. McNiven, A. H. Shah, and J. L. Sackman. **40**: 784—1966

Axially symmetric waves in hollow, elastic rods. Part II. H. D. McNiven, J. L. Sackman, and A. H. Shah. **40**: 1073—1966

Axisymmetric plane strain vibrations of a thick-layered orthotropic cylindrical shell. Nazeer Ahmed. **40**: 1509—1966

Axisymmetric response of a closed spherical shell to a nearly uniform radial impulse. Ivor K. McIvor and David A. Sonstegard. **40**: 1540—1966

Axisymmetric vibrations of prolate spheroidal shells. F. DiMaggio and R. Rand. **40**: 179—1966

Composite loss factors of selected laminated beams. R. A. Di Taranto and W. Blasingame. **40**: 187—1966

Coupled-mode approach to elastic-vibration analysis. Errol P. Eer Nisse. **40**: 1045—1966

Coupled vibratory-system analysis, using the dual formulation. Dean Karnopp. **40**: 380—1966

Energy dissipation associated with gas-pumping in structural joints. G. Maidanik. **40**: 1064—1966

Finite radial oscillations of a spinning thick-walled cylinder. J. L. Nowinski and S. D. Wang. **40**: 1548—1966

Finite transform solution of the damped, clamped–clamped beam having distributed load and elastic support. M. H. Cobble. **40**: 1529—1966

Flexural vibrations of a circular ring when transverse shear and rotary inertia are considered. Jagjit Singh Bakshi and W. R. Callahan. **40**: 372—1966

Free vibrations of a slender bar with nonuniform characteristics. Chi-Hung Mok and E. A. Murray, Jr. **40**: 385—1966

Generalized matrix method for the design and analysis of vibration-isolation systems. Leonard E. Smollen. **40**: 195—1966

Graphical method for obtaining the natural frequencies of a three-degree-of-freedom system. Hanchung Wang. **40**: 1081—1966

In-plane inextensional vibrations of a circular ring with a time-dependent displacement prescribed at the boundaries. M. H. Clayton and L. H. Royster. **40**: 1039—1966

Inverse design for flexural vibrators. E. Eisner. **40**: 773—1966

Method of calculation of frequencies of partially fixed beams carrying masses. Chintakindi L. Amba-Rao. **40**: 367—1966

Natural frequencies of closed spherical sandwich shells. J. P. D. Wilkinson. **40**: 801—1966

Nonlinear resonance in stretched strings with viscous damping. G. V. Anand. **40**: 1517—1966

Numerical studies of elastic-disk contour modes lacking axial symmetry. Richard Holland. **40**: 1051—1966

Problem in dynamic thermoelasticity. Y. T. Tsui. **40**: 176—1966

Propagation of harmonic flexural waves in an infinite elastic rod of elliptical cross section. P. K. Wong, J. Miklowitz, and R. A. Scott. **40**: 393—1966

Resonances excited in an elastically connected double-beam system by a cyclic moving load. P. G. Kessel. **40**: 684—1966
Response of viscoelastic cylindrical shells to moving loads. Sing-Chih Tang. **40**: 793—1966
Sloshing of a liquid in connected cylindrical tanks owing to U-tube free oscillations. Gordon C. K. Yeh. **40**: 807—1966
Torsional-wave propagation from a rigid sphere semiembedded in an elastic half-space. James L. Hill. **40**: 376—1966
Use of instantaneous axes for determining small oscillations. A. L. Sweet and Joseph Genin. **40**: 390—1966
Vibration of a spherical shell in an acoustic medium. Sabih Hayek. **40**: 342—1966
Vibration of a thick cable. Wen-Hsiung Li and Bor-Ming Tang. **40**: 776—1966
Vibrations of a Timoshenko beam, using finite-element approach. Kanwar K. Kapur. **40**: 1058—1966
Vibrations of plates bounded by parts of elliptical and hyperbolic cylinders. Ebenezer N. Krishnappa and W. R. Callahan. **40**: 1534—1966
Vibrations of rectangular sandwich (honeycomb) plates with mass attachment. M. J. Jacobson, J. L. Malakoff, J. L. Preston, and V. I. Weingarten. **40**: 677—1966
Wave interaction of a viscoelastic medium with an elastic cylindrical shell. Fred C. Finlayson and Yechiel Shulman. **40**: 1495—1966

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Vibration of a viscoelastic rod in a medium producing viscoelastic damping. S. Raynor. **40**: 915—1966

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Analytical investigation on the vibrations of clamped plates of complicated shape. Ralph Passarelli. **40**: 1277—1966
Asymptotic theory for the vibrations of elastic plates. O. E. Widera. **40**: 1277—1966
Axisymmetric vibrations of a solid elastic cylinder encased in a rigid container. James R. Hutchinson. **40**: 1278—1966
Cascade models of vibration transmission in flight vehicles. Terry D. Scharton and Peter A. Franken. **40**: 1270—1966
Distribution of the vibration amplitude and of the energy density over complex vibratory systems. E. J. Skudrzyk. **40**: 1271—1966
Effect of plane-symmetric mass loading on the response of ring-stiffened cylindrical shells. C. D. Michalopoulos and D. Muster. **40**: 1277—1966
End vibrational modes in cylindrical shell. E. M. Frymoyer. **40**: 1277—1966
Finite-element modeling of a cantilever beam. Jerry F. Kuzanek. **40**: 1283—1966
Interconnection of structural systems by use of immittance concepts. Frank J. On. **40**: 1283—1966
Mechanical-impedance concepts applied to the dynamic flexural response of beams. H. E. Wieland and E. L. Hixson. **40**: 1277—1966
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Resistive electrical networks for the study of shell vibrations. O. A. Shinaishin. **40**: 1277—1966
Variational method for electroelastic-vibration analysis. Errol P. Eer Nisse. **40**: 1260—1966
Wave propagation in a sandwich ring. M. J. Sagartz, L. M. Keer, and G. Herrmann. **40**: 1284—1966

12.10 Seismology. Geophysical Prospecting. Seismographs

Patents

Apparatus for pinpointing leaks in buried pipes. J. M. Reid and Paul L. Michael. **40**: 1582—1966

12.11 Effect of Sound on Structures. Fatigue. (See also 11.8.)

Papers

Energy dissipation associated with gas-pumping in structural joints. G. Maidanik. **40**: 1064—1966
Transmission of random sound and vibration through a rectangular double wall. Pritchard H. White and Alan Powell. **40**: 821—1966

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Acoustic simulation of response of aerospace-vehicle skin structure to boundary-layer turbulence. Robert W. White and Malcolm J. Crocker. **40**: 1266—1966
Cascade models of vibration transmission in flight vehicles. Terry D. Scharton and Peter A. Franken. **40**: 1270—1966
Defining the induced vibration of a space vehicle during flight. David Alan Bies. **40**: 1270—1966
Dynamic response of a cylindrical shell subjected to instantaneous heating and impulse. W. C. Lyons. **40**: 1281—1966
Excitation of flat panels by laterally uncorrelated fluctuating pressures. W. W. Boyd. **40**: 1270—1966
Experimental aids for predicting structural response to sonic booms. Richard L. Lowery. **40**: 1270—1966
Interconnection of structural systems by use of immittance concepts. Frank J. On. **40**: 1283—1966
NASA general-purpose program for structural analysis. Thomas G. Butler. **40**: 1283—1966
Non-Gaussian response statistics and reliability prediction. Talivaldis I. Smits. **40**: 1278—1966
Peak statistics of linear systems excited by impulsive noise. George L. Hedin. **40**: 1278—1966
Response of flexible panel to turbulence. Lucio Maestrello. **40**: 1265—1966
Response of panels to oscillating shock waves. Malcolm J. Crocker. **40**: 1269—1966
Tolerance of glass for high-level noise exposure. Jerry P. Christoff, Paul S. Veneklasen, and John Huh. **40**: 1270—1966
Transient response of a rectangular plate coupled with a Helmholtz resonator. G. D. Whitehouse and Richard L. Lowery. **40**: 1270—1966
Transmission of sound and vibration to a shroud-enclosed spacecraft. Jerome E. Manning, Richard H. Lyon, and Terry D. Scharton. **40**: 1270—1966
Turbulent boundary layer of space-flight vehicle. Richard H. Lyon and K. L. Chandiramani. **40**: 1265—1966

12.12 Random Vibration. (Started 1965.)

Papers

Response of a flexible panel to turbulent flow: Running-wave versus modal-density analysis. H. S. Ribner. **40**: 721—1966
Transduction of boundary-layer noise by a rectangular panel. Pritchard H. White. **40**: 1354—1966

Transmission of random sound and vibration through a rectangular double wall. Pritchard H. White and Alan Powell. **40**: 821—1966

13 UNDERWATER SOUND

13.1 General, Unclassified

Letters to the Editor

Reference pressure for sound-pressure level. Robert W. Young. **40**: 728—1966

Standard reference pressure for underwater sound. Laurence Batchelder. **40**: 727—1966

Technical Notes and Research Briefs

Human hearing under water: Are things as bad as they seem? Stephen H. Feinstein. **40**: 1561—1966

Underwater acoustic test vehicle. Roger F. Snyder. **40**: 1563—1966

News

Adaptation and the theory of signal detectability. Theodore G. Birdsall. **40**: 933—1966

Application of stochastic theory in underwater acoustics. **40**: 932—1966

Detection and location of noise sources. A. G. D. Watson. **40**: 932—1966

Environmental fluctuations in the ocean. John C. Beckerle. **40**: 933—1966

MIMI progress report: Propagation across the Straits of Florida. John G. Clark. **40**: 933—1966

Nonparametric detector for a narrow-band signal. Arthur Shapiro. **40**: 932—1966

Short UCLA course in Underwater Acoustics. **40**: 261—1966

Some stochastic structures for modeling underwater sound. H. W. Marsh. **40**: 932—1966

Statistical models of reverberation, clutter, and similar first-order scattered fields. David Middleton. **40**: 932—1966

Statistical representation of the medium and of propagation variability. Clayton F. Black. **40**: 932—1966

U. S. Navy Underwater Sound Laboratory celebrates twenty-fifth anniversary. **40**: 929—1966

Walter L. Clearwaters receives award. **40**: 933—1966

13.2 Propagation of Sound in Water. Attenuation. Fluctuation

Papers

Experiment on sound propagation in shallow water under isovelocity conditions. A. C. Kibblewhite and R. N. Denham. **40**: 1337—1966

Some deep-water sound-transmission paths south of Cyprus. Part II: Diffraction effects. Lincoln Baxter, II, and Robert Brockhurst. **40**: 1288—1966

Time variability of volume scattering in a small oceanic area. Barry A. Gold and Peter van Schuyler. **40**: 1317—1966

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Effect of rough boundaries on normal-model sound propagation. H. P. Bucker and Halcyon E. Morris. **40**: 252—1966

Fish as a possible cause of low-frequency acoustic attenuation in deep water. D. E. Weston. **40**: 1558—1966

Impulse propagation in underwater sound channels. Robert H. Mellen. **40**: 500—1966

Model sound channel with sinusoidal rays. A. G. .D. Watson. **40**: 1202—1966

Recent results from the Straits-of-Florida underwater-sound-propagation study. J. G. Clark, R. Dann, and J. R. Yarnall. **40**: 1195—1966

Abstracts

Calculation of frequency-modulated sound pulses. Robert Hickling and D. H. Thomas. **40**: 1281—1966

Determination of bottom slope and roughness from travel-time differences. A. T. Jaques. **40**: 1244—1966

Effect of velocity-profile simplification upon measured fluctuation of sound propagation in water. William J. Leiss and D. C. Whitmarsh. **40**: 1244—1966

Ray and mode dispersion for a model of the SOFAR channel. H. P. Bucker. **40**: 1243—1966

Ray-path characteristics in a sound channel for a particular velocity-depth profile. D. F. Dence. **40**: 1243—1966

Ray propagation in a linearly moving inhomogeneous layered medium. H. S. Hayre and I. D. Tripathi. **40**: 1244—1966

Shallow-water propagation under downward-refraction conditions. B. F. Cole and E. M. Podeszwa. **40**: 1244—1966

Some spatial and temporal variations in Pacific SOFAR propagation paths. John Northrop. **40**: 1243—1966

Sound-transmission paths to a hydrophone in the body of the deep sea. R. J. Urick. **40**: 1244—1966

13.3 Velocity of Sound in Water. Refraction. Doppler Effect

Papers

Analog-computer program for studying underwater sound rays and refraction effects. John P. Beam. **40**: 813—1966

Descriptive analysis of Doppler discrimination as a function of variations in dimensions of the sonar echo. Alan W. Lau. **40**: 565—1966

Experiment on sound propagation in shallow water under isovelocity conditions. A. C. Kibblewhite and R. N. Denham. **40**: 1337—1966

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Focusing properties of liquid-filled cylindrical lens with $D/\lambda > 15$. D. L. Folds and D. H. Brown. **40**: 1284—1966

Precision *in-situ* measurements of relationship between temperature, salinity, pressure, and sound speed. K. V. Mackenzie. **40**: 1244—1966

Pulse distortion in a refracting medium. Peter Hirsch. **40**: 1243—1966

Ray-path characteristics in a sound channel for a particular velocity–depth profile. D. F. Dence. **40**: 1243—1966
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Subtitles
Velocity of sound in water. J. R. Brown and D. W. Brown. **40**: 402—1966

13.4 Reflection. Echoes. Structures for Absorbing Sound in Water

Papers
Measurements of volume scattering from a deep scattering layer. Barry A. Gold. **40**: 688—1966
Reverberation under Arctic sea-ice. J. R. Brown and D. W. Brown. **40**: 399—1966
Sea-surface roughness and acoustic reverberation—an operational model. J. J. Martin. **40**: 697—1966
Signal-waveform distortion caused by reflection off lossy-layered bottoms. Albert H. Nuttall and Benjamin F. Cron. **40**: 1094—1966
Time variability of volume scattering in a small oceanic area. Barry A. Gold and Peter van Schuyler. **40**: 1317—1966

Letters to the Editor
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Abstracts
Acoustic backscattering from a wind-driven water surface. R. A. Pruitt, R. R. Goodman, and S. W. Marshall. **40**: 1258—1966
Calculation of frequency-modulated sound pulses. Robert Hickling and D. H. Thomas. **40**: 1281—1966
Determination of bottom slope and roughness from travel-time differences. A. T. Jaques. **40**: 1244—1966
Measurements of the distortion of ocean-bottom-reflected acoustic pulses. S. R. Santaniello. **40**: 1257—1966
Model study of acoustic reflection from a rippled water–sand interface. P. Arcuni and J. V. Sanders. **40**: 1279—1966
Some factors affecting the measurements of bottom reflectivity. F. R. Menotti and S. R. Santaniello. **40**: 1258—1966
Specular scattering of underwater sound from a wind-driven surface. H. Medwin. **40**: 1258—1966

13.5 Interference. Diffraction

Papers
Some deep-water sound-transmission paths south of Cyprus. Part II: Diffraction effects. Lincoln Baxter, II, and Robert Brockhurst. **40**: 1288—1966

Letters to the Editor
Fine structure of acoustic fields scattered from the ocean bottom. Burton G. Hurdle. **40**: 255—1966

Abstracts
Model study of acoustic reflection from a rippled water–sand interface. P. Arcuni and J. V. Sanders. **40**: 1279—1966

13.6 Scattering. Reverberation in Water

Papers
Acoustic scattering from fluid spheres. H. G. Frey and R. R. Goodman. **40**: 417—1966
Measurements of volume scattering from a deep scattering layer. Barry A. Gold. **40**: 688—1966
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Reverberation under Arctic sea-ice. J. R. Brown and D. W. Brown. **40**: 399—1966
Sea-surface roughness and acoustic reverberation—an operational model. J. J. Martin. **40**: 697—1966
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Letters to the Editor
Fish as a possible cause of low-frequency acoustic attenuation in deep water. D. E. Weston. **40**: 1558—1966
Underwater acoustic scattering from Arctic ice. R. H. Mellen. **40**: 1200—1966

Abstracts
Acoustic backscattering from a wind-driven water surface. R. A. Pruitt, R. R. Goodman, and S. W. Marshall. **40**: 1258—1966
Circumferential waves in structurally reinforced metallic cylindrical shells in water. O. D. Grace and T. G. Goldsberry. **40**: 1279—1966
Frequency dependence of reverberation in the ocean. Victor C. Anderson. **40**: 1257—1966
Influence of beamwidth and multiple transmissions on reverberation-limited sonars. B. F. Cole and J. J. Hanrahan. **40**: 1257—1966
Scattering of FM acoustic pulses from metallic spheres in water. K. J. Diercks, T. G. Goldsberry, and Robert Hickling. **40**: 1258—1966
Spatial coherence of sonar reverberation. Louis S. Meharg and E. L. Hixson. **40**: 1256—1966
Specular scattering of underwater sound from a wind-driven surface. H. Medwin. **40**: 1258—1966

13.7 Radiation from Objects Vibrating under Water. Acoustical and Mechanical Impedance. (See also 5.3, 11.5, and 12.3z.)

Papers
Acoustic-impedance measurements at high hydrostatic pressures. Gerald A. Sabin. **40**: 1345—1966
Acoustic radiation from a piston in a layered medium, with applications to a layer containing bubbles. V. Mangulis. **40**: 1083—1966
Acoustic radiation from a wobbling piston. Visvaldis Mangulis. **40**: 349—1966
Low-frequency sound radiation from slender bodies of revolution. Hartley L. Pond. **40**: 711—1966
Radiation resistance, cavitation factor, and beam patterns for steered, closely packed, rectangular arrays in a rigid plane. Norman T. Chin. **40**: 1305—1966

Letters to the Editor
Formation of difference patterns in transducer arrays with an odd number of elements. Geoffrey L. Wilson. **40**: 915—1966

Interaction radiation resistance and reactance measurements for two small transducers at an air-water surface. F. B. Stumpf and L. A. Crum. **40**: 1554—1966
Unique directional reflectors for omnidirectional underwater acoustic transducers. Arthur A. Crews and Robert L. Erath. **40**: 1556—1966

Abstracts
Acoustic nearfield of a metallic spherical shell in water. T. G. Goldsberry and K. J. Diercks. **40**: 1258—1966
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Computed diffraction characteristics of a sonar baffle. L. F. Kreisle and W. C. Moyer. **40**: 1247—1966
Digital generation of linear FM pulse of given time–bandwidth product. G. Vettori. **40**: 1278—1966
Pressure field in the liquid around a vertically heaving sphere. Erwin W. Paul and Albert J. Tucker. **40**: 1279—1966
Scaled spherical transducer array. Stanley L. Ehrlich and J. H. Heimann. **40**: 1247—1966
Spectral character of ice vibrations in the Central Arctic Ocean from 0.1 to 100 cps. David Prentiss, Edward Davis, and Henry Kutschale. **40**: 1279—1966

13.8 **Sound Generation by Liquid Motion, Bubbles, Turbulence, Splashes. (See also 13.12.)**

Papers
Acoustic radiation from a piston in a layered medium, with applications to a layer containing bubbles. V. Mangulis. **40**: 1083—1966
Effect of turbulence nearfield on a shielded transducer. H. S. Heaps. **40**: 1331—1966

Letters to the Editor
Mapping of the space-time correlation of ambient sea noise. Elizabeth M. Arase and T. Arase. **40**: 499—1966
Miniature transducer assembly for measuring the properties of the wall-pressure field in turbulent flows. J. Michael Clinch. **40**: 254—1966

Abstracts
Flow-noise measurements in water. Gerald J. Franz. **40**: 1265—1966
Flow-noise research related to the sonar self-noise problem. Patrick Leehey. **40**: 1265—1966
Waveforms of cavitation-generated sound. Laurence Batchelder. **40**: 1261—1966

Patents
Acoustic wave impulse generator repeater. Stephen V. Chelminski. **40**: 1236—1966

13.9 **Noise in Water, Ship Noise. Flow Noise, Biological Noises**

Papers
Correlation of ambient sea noise. Elizabeth M. Arase and T. Arase. **40**: 205—1966
Correlative properties of ambient noise at Bermuda. R. J. Urick. **40**: 1108—1966

Letters to the Editor
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Abstracts
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Flow-noise measurements in water. Gerald J. Franz. **40**: 1265—1966
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Measurement of noise in a high-speed towed body. J. H. Stockhausen and E. Evensen. **40**: 1257—1966
Pressure nearfield and the radiation field in flow noise. Gillian P. Haddle and E. J. Skudrzyk. **40**: 1257—1966
Spectral character of ice vibrations in the Central Arctic Ocean from 0.1 to 100 cps. David Prentiss, Edward Davis, and Henry Kutschale. **40**: 1279—1966

13.10 **Underwater Macrosonics. Explosions. Distortion. (See also 14.2 and 12.5.)**

Papers
Conversion of electromagnetic to acoustic energy by surface heating. Luke S. Gournay. **40**: 1322—1966
Experimental study of the fundamental-frequency component of a plane, finite-amplitude wave. William W. Lester. **40**: 847—1966
Measured structure of harmonics self-generated in an acoustic beam. Robert K. Gould, C. W. Smith, A. O. Williams, Jr., and R. P. Ryan. **40**: 421—1966

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Comments on "Harmonic distortion of spherical sound waves in water" [O. H. McDaniel, J. Acoust. Soc. Am. **38**, 644–647 (1965)]. C. W. Smith and Robert T. Beyer. **40**: 257—1966
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Abstracts
Sound-transmission paths to a hydrophone in the body of the deep sea. R. J. Urick. **40**: 1245—1966
Technique to predict acoustic distortion in elastic-walled liquid cylinders. Charles J. Rivera. **40**: 1260—1966

Patents
Free-bubble gas sound source. David T. Barry. **40**: 1236—1966

News
Nonlinear underwater acoustics. B. K. Gazey. **40**: 940—1966

13.11 **Instruments Relating to Underwater Sound**

Papers
Analog-computer program for studying underwater sound rays and refraction effects. John P. Beam. **40**: 813—1966

Abstracts
Digital generation of linear FM pulse of given time–bandwidth product. G. Vettori. **40**: 1278—1966
Focusing properties of liquid-filled cylindrical lens with $D/\lambda>15$. D. L. Folds and D. H. Brown. **40**: 1284—1966
Linear filter theory for circular array processing. G. Vettori. **40**: 1279—1966

Patents

Electronic self-contained apparatus for sound or voice communication. Luigi Martelli and Carlos Reinberg. **40**: 1236—1966

System for recording sonar signals on record carrier. Rudolf Rucklin. **40**: 539—1966

Ultrasonic underwater sound generator. Henry L. R. Smyth, David M. Makow, and Stanley K. Keays. **40**: 1582—1966

13.11n Navigational Instruments Using Underwater Sound. Underwater-Listening and Echo-Ranging Devices. Sonar

Papers

Descriptive analysis of Doppler discrimination as a function of variations in dimensions of the sonar echo. Alan W. Lau. **40**: 565—1966

Letters to the Editor

Nonlinear programming applied to linear-array design. L. S. Lasdon, D. F. Suchman, and A. D. Waren. **40**: 1197—1966

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Abstracts

Computed diffraction characteristics of a sonar baffle. L. F. Kreisle and W. C. Moyer. **40**: 1247—1966

Flow-noise research related to the sonar self-noise problem. Patrick Leehey. **40**: 1265—1966

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Pressure nearfield and the radiation field in flow noise. Gillian P. Haddle and E. J. Skudrzyk. **40**: 1257—1966

Quick characterization of the directional response of point arrays. Carl D. Lowenstein and Victor C. Anderson. **40**: 1247—1966

Spatial coherence of sonar reverberation. Louis S. Meharg and E. L. Hixson. **40**: 1256—1966

Patents

Combination radio receiver and underwater Doppler acoustical device. Jack Kritz. **40**: 540—1966

Doppler navigation system. Jack Kritz and Seymour D. Lerner. **40**: 1582—1966

Echo ranging display system. Burton G. Hurdle and Robert J. Mackey, Jr. **40**: 539—1966

Echo ranging torpedo. Harvey Brooks and Arthur N. Butz, Jr. **40**: 540—1966

Method and device for determining the position of sound sources in water. Bengt Gunnar Gustafsson. **40**: 1582—1966

Method for determining time-averaged depth. James H. Brown and Thomas A. Priscilla. **40**: 1583—1966

Pressure wave transmission arrangements. Henry Joseph Round and Stanley Hunter. **40**: 772—1966

Radiosonobuoys. Guy Maes. **40**: 540—1966

Range and bearing recorder. James R. Richards. **40**: 1583—1966

Scanned output line transducer. John J. Yagelowich. **40**: 540—1966

Silent underwater beacon. Rodolph J. Ciavaglia. **40**: 1582—1966

Sonar directional beam focusing system. Pierre H. Boucheron, Jr. **40**: 772—1966

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Ultrasonic position indicator system. Kenneth H. Beck and William I. Shepley. **40**: 540—1966

Underwater detection by interface coupling. Howard Alan Thorpe. **40**: 772—1966

Underwater electrical equipment. Fred Oswald. **40**: 772—1966

News

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13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

Papers

Analysis of electroacoustic transducers by differential immittance techniques. Abraham I. Dranetz and Harvey Rathbun, Jr. **40**: 412—1966

Effective coupling factor of single-degree-of-freedom transducers. R. S. Woollett. **40**: 1112—1966

Effect of turbulence nearfield on a shielded transducer. H. S. Heaps. **40**: 1331—1966

Effects of one-dimensional pressure on the properties of several transducer ceramics. R. Y. Nishi. **40**: 486—1966

Nearfield of a dipole for measurements in shallow lakes. Robert J. Bobber. **40**: 1300—1966

Radiation resistance, cavitation factor, and beam patterns for steered, closely packed, rectangular arrays in a rigid plane. Norman T. Chin. **40**: 1305—1966

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Computer processing and presentation of discrete transducer directivity data. J. E. Johnstone, D. A. Smith, and D. D. Baker. **40**: 1281—1966

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Patents

Combination galvanic velocity cell and hydrophone. Anthony C. Suleski. **40**: 947—1966

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Control apparatus. Alvin W. Elston and Gordon A. Vincent. **40**: 1236—1966
Discontinuous hollow cylindrical transducer. Leon W. Camp. **40**: 1583, 1584—1966
Distributed coupling transducer. Winfield James Trott. **40**: 948—1966
Double circuit production of sound energy in water. Jack R. Harris and Clifford M. Rigsbee. **40**: 542—1966
Electroacoustic transducer for detection of low level acoustic signals over a broad frequency range. Paul M. Kendig and David C. Greene. **40**: 947—1966
Electromechanical transducer. Helmut J. Straube. **40**: 1583—1966
Hydrophone. Glenn N. Howatt. **40**: 1583—1966
Hydrophones. Thomas P. Hurley and Noel C. Sears. **40**: 1584(2 patents)—1966
Integral directional electroacoustical transducer for simultaneous transmission and reception of sound. Arthur H. Roshon, Jr., and Daniel E. Andrews, Jr. **40**: 947—1966
Low frequency hydrophone calibration. Fred Schloss and Murray Strasberg. **40**: 540—1966
Methods and apparatus for producing sound energy in water. Jack R. Harris and Clifford M. Rigsbee. **40**: 542—1966
Open hemispherical transducers. John J. Horan, James R. Brown, Jr., and Maurice F. Pressler. **40**: 542—1966
Piezoelectric transformer. Howard F. Benson. **40**: 948—1966
Pressure compensated hydrophone. Theodore C. Madison. **40**: 1585—1966
Pressure compensated hydrophone with constant stiffness. William H. Cox. **40**: 543—1966
Pressure compensated sonic transducer. Miguel C. Junger and Klaus Kleinschmidt. **40**: 1584—1966
Pressure compensated transducer. George R. Douglas, John H. Thompson, and Robert H. Whittaker. **40**: 1584—1966
Pressure compensated transducer. Alvin W. Elston and Gordon A. Vincent. **40**: 1585—1966
Pressure pulsation generator. Emil J. Hellund. **40**: 946—1966
Reinforced ceramic cylindrical transducers. David E. Parker and Edwin J. Parssinen. **40**: 543—1966
Resonant underwater hydrodynamic acoustic projector. Robert H. Mellen. **40**: 1585—1966
Single air gap underwater transducer array. John Chervenak. **40**: 542—1966
Single-circuit proportionator method and apparatus for sound energy. Jack R. Harris and Clifford M. Rigsbee. **40**: 542—1966
Sound-producing system and apparatus. Gary Hayward and Harold E. Edgerton. **40**: 541—1966
Sound source. Louis R. Padberg, Jr. **40**: 541—1966
Subaqueous audio-sound transmitter. Frederick M. Freis. **40**: 543—1966
Transducer. Jack Elliot, Jr., and Jack W. Holloway. **40**: 542—1966
Transducer. Wilbur T. Harris. **40**: 543—1966
Transducer mount. Paul L. Michael. **40**: 1583—1966

13.12 Acoustic Cavitation

Papers
Radiation resistance, cavitation factor, and beam patterns for steered, closely-packed, rectangular arrays in a rigid plane. Norman T. Chin. **40**: 1305—1966
Studies of the threshold-of-cavitation noise in liquid helium. R. D. Finch, Taylor G. J. Wang, R. Kagiwada, M. Barmatz, and Isadore Rudnick. **40**: 211—1966

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Cavitation meter. **40**: 506—1966

Abstracts
Bubble nucleation by vortices in a liquid-helium II bubble chamber. M. H. Edwards. **40**: 1238—1966
Cavitation in liquid helium. R. D. Finch. **40**: 1238—1966
Cavitation nucleation by energetic particles. C. West. **40**: 1239—1966
Radiation-induced ultrasonic cavitation. Martin Greenspan and Carl E. Tschiegg. **40**: 1239—1966
Research on cavitation nuclei. D. Sette. **40**: 1238—1966
Waveforms of cavitation-generated sound. Laurence Batchelder. **40**: 1261—1966

Patents
Method and apparatus for detecting incipient boiling of a liquid. Nicholas Maropis. **40**: 1585—1966

14 AEROACOUSTICS, MACROSONICS

14.2 Macrosonic Propagation. Distortion of the Wavefront. Shock Waves. Blast Waves. Supersonic Boom

Papers
Acoustic-waveform distortion due to nonlinear elastic behavior in cadmium sulfide. Arthur Eden Lord, Jr., and B. B. Chick. **40**: 1473—1966
Air-blast suppression as a function of explosive-charge burial depth. L. J. Vortman. **40**: 229—1966
Experimental study of the fundamental-frequency component of a plane, finite-amplitude wave. William W. Lester. **40**: 847—1966
Intensity ruby laser-induced acoustic impulses in liquids. E. F. Carome, C. E. Moeller, and N. A. Clark. **40**: 1462—1966
Measured structure of harmonics self-generated in an acoustic beam. Robert K. Gould, C. W. Smith, A. O. Williams, Jr., and R. P. Ryan. **40**: 421—1966
Standing sound waves of finite amplitude. Stephen Weiner. **40**: 240—1966
Weak shocks in solids. Paul Harris. **40**: 226—1966

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Comments on "Harmonic distortion of spherical sound waves in water" [O. H. McDaniel, J. Acoust. Soc. Am. **38**, 644-647 (1965)]. C. W. Smith and Robert T. Beyer. **40**: 257—1966
Growth of distortion in a finite-amplitude sound wave in air. Donald B. Cruikshank, Jr. **40**: 731—1966
Reply to "Comments on 'Harmonic distortion of spherical sound waves in water'" [C. W. Smith and Robert T. Beyer, J. Acoust. Soc. Am. **40**: 257(L) (1966)]. Oliver H. McDaniel. **40**: 257—1966

Abstracts
Bessel's solution for a two-tone finite-amplitude source. Duane H. Cooper. **40**: 1260—1966
Diffraction of acoustic transients in air. Wayne M. Wright. **40**: 1269—1966
Experimental aids for predicting structural response to sonic booms. Richard L. Lowery. **40**: 1270—1966

Further report on the transient solution for sound in a viscous fluid. David T. Blackstock. **40:** 1268—1966
Microphone rise-time response to a progressive shock wave. R. Brown, T. E. Siddon, and John J. Van Houten. **40:** 1259—1966
Response of panels to oscillating shock waves. Malcolm J. Crocker. **40:** 1269—1966
Subharmonic generation in an ultrasonic resonant cavity. M. A. Breazeale and Ross McCluney. **40:** 1262—1966
Technique to predict acoustic distortion in elastic-walled liquid cylinders. Charles J. Rivera. **40:** 1260—1966
Transient response of a rectangular plate coupled with a Helmholtz resonator. G. D. Whitehouse and Richard L. Lowery. **40:** 1270—1966

14.3 Gross Movement of Matter by Sound Waves. Acoustic Streaming

Papers
Heat transfer across a solid–liquid interface in the presence of acoustic streaming. Robert K. Gould. **40:** 219—1966

14.6 Interaction of Fluid Motion and Sound

Papers
Pulse technique for measuring the scattering of sound from turbulence. William Baerg and W. H. Schwarz. **40:** 133—1966

Abstracts
Lateral acoustic instability. Michael Schulz and Uno Ingard. **40:** 1269—1966

14.7 Generation of Sound by Fluid Flow

Papers
Response of a flexible panel to turbulent flow: Running-wave versus modal-density analysis. H. S. Ribner. **40:** 721—1966
Sound transmission through a finite, closed, cylindrical shell. Pritchard H. White. **40:** 1124—1966
Transduction of boundary-layer noise by a rectangular panel. Pritchard H. White. **40:** 1354—1966
Transmission of random sound and vibration through a rectangular double wall. Pritchard H. White and Alan Powell. **40:** 821—1966

Abstracts
Acoustic simulation of response of aerospace-vehicle skin structure to boundary-layer turbulence. Robert W. White and Malcolm J. Crocker. **40:** 1266—1966
Interpretation of wall-pressure measurements under a turbulent boundary layer. K. L. Chandiramani. **40:** 1264—1966
Possible mechanism for the surface-pressure fluctuations beneath turbulent boundary layers. Martin V. Lowson. **40:** 1264—1966
Recent advances in pure-fluid acoustic amplification. H. H. Unfried. **40:** 1281—1966
Relation between turbulent-flow structure and wall-pressure fluctuations in a turbulent boundary layer. William W. Willmarth. **40:** 1265—1966
Turbulent boundary layer of space-flight vehicle. Richard H. Lyon and K. L. Chandiramani. **40:** 1265—1966

14.8 Aerothermoacoustics

Papers
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Reply to "Comments on 'Influence of sound upon local heat transfer from a cylinder'" [R. M. Fand, J. Acoust. Soc. Am. **38**, 370–372(L) (1965)]. P. D. Richardson. **40:** 1558—1966

Abstracts
Dynamic response of a cylindrical shell subjected to instantaneous heating and impulse. W. C. Lyons. **40:** 1281—1966

15 ACOUSTIC SIGNAL PROCESSING

15.1 General, Unclassified

Papers
Descriptive analysis of Doppler discrimination as a function of variations in dimensions of the sonar echo. Alan W. Lau. **40:** 565—1966

Abstracts
Computer processing and presentation of discrete transducer directivity data. J. E. Johnstone, D. A. Smith, and D. D. Baker. **40:** 1281—1966
Determination of "three-dimensional" directivity patterns of a transducer from discrete response measurements. D. A. Smith, J. E. Johnstone, and D. D. Baker. **40:** 1281—1966
Effect of duration upon detection with gated and continuous noise and signal. Ann Tucker, Rand B. Evans, and Lloyd A. Jeffress. **40:** 1250—1966
Factors affecting the slope of empirical ROC curves. Joseph Markowitz and John A. Swets. **40:** 1250—1966

15.3 Space–Time Processing Methods. Automatic Recognition

Abstracts
Detection characteristics of two detectors based on the cross spectrum. Arthur Shapiro. **40:** 1278—1966
Digital recording and reading equipment for underwater sound studies. R. Laval and A. Castanet. **40:** 1279—1966
Linear filter theory for circular array processing. G. Vettori. **40:** 1279—1966

15.4 Displays and Sensory Pattern Recognition. Learning Machines

Abstracts
Digital recording and reading equipment for underwater sound studies. R. Laval and A. Castanet. **40:** 1279—1966

16 BIOACOUSTICS

16.1 General, Unclassified

News
Marine Bioacoustics Symposium. **40:** 262—1966

16.2 **Acoustic Characteristics of Biological Materials. Tissues. Microstructures from Macromolecular Species to Cellular Level**

Abstracts

Ultrastructure of the amphibian papilla in the bullfrog. Åke Flock and Britta Flock. **40:** 1262—1966

16.4 **Mechanisms of Action of Acoustic Energy on Biological Systems. Physical Processes. Sites of Action**

Papers

Deformation and motion produced in isolated living cells by localized ultrasonic vibration. Walter L. Wilson, Floyd J. Wiercinski, Wesley L. Nyborg, R. M. Schnitzler, and F. J. Sichel. **40:** 1363—1966

Input–output characteristics of the lateral-line sense organs of *Xenopus laevis*. G. G. Harris and D. C. Milne. **40:** 32—1966

Letters to the Editor

Effects of heat and ultrasound on Vx-2 carcinoma in bones of rabbits: a preliminary report. Lawrence E. Cerino, Eugene Ackerman, and Joseph M. Janes. **40:** 916—1966

16.5 **Use of Acoustic Energy (with or without Other Forms of Energy) in Studies of Structure and Function of Biological Systems**

Papers

Deformation and motion produced in isolated living cells by localized ultrasonic vibration. Walter L. Wilson, Floyd J. Wiercinski, Wesley L. Nyborg, R. M. Schnitzler, and F. J. Sichel. **40:** 1363—1966

Letters to the Editor

Ultrasonic irradiation of enzyme solutions. R. M. Macleod and Floyd Dunn. **40:** 1202—1966

16.6 **Sound Generation and Detection by Animals**

Papers

Aural pulse compression by bats and humans. J. J. G. McCue. **40:** 545—1966

Effect of signal duration on the auditory sensitivity of humans and monkeys (*Macaca mulatta*). T. Dean Clack. **40:** 1140—1966

Input–output characteristics of the lateral-line sense organs of *Xenopus laevis*. G. G. Harris and D. C. Milne. **40:** 32—1966

Vocal response of the bullfrog to natural and synthetic mating calls. Robert R. Capranica. **40:** 1131—1966

Letters to the Editor

Behavioral and Pinna-reflex thresholds in the rat: audiometric and TTS covariations. T. Dean Clack. **40:** 1186—1966

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Biological sonar: the human. Charles E. Rice. **40:** 502—1966

Abstracts

Auditory responses in the medulla of the bullfrog: comparison with eighth-nerve responses. Lawrence S. Frishkopf and Robert R. Capranica. **40:** 1262—1966

Effect of middle-ear fluid loading on the cochlear microphonic in the cat. Craig O. Linnell and Peter J. Dallos. **40:** 1263—1966

Electrical tuning curves of the guinea-pig cochlea. C. Z. Laszlo, R. Patrick Gannon, and David H. Moscovitch. **40:** 1274—1966

Measures of human-Tursiops sonic interactions. John C. Lilly and H. M. Truby. **40:** 1241—1966

Microphonic response from the inner ear of the bullfrog. Robert R. Capranica, Åke Flock, and Lawrence S. Frishkopf. **40:** 1262—1966

Quality of impedance matching by the middle ear of cats. Juergen Tonndorf and S. M. Khanna. **40:** 1263—1966

Responses of auditory units in the medulla of the cricket frog. Robert R. Capranica and Lawrence S. Frishkopf. **40:** 1263—1966

Ultrastructure of the amphibian papilla in the bullfrog. Åke Flock and Britta Flock. **40:** 1262—1966

Underwater signal characteristics of porpoises and killer whale as a function of size and acoustic properties of the head. T. E. Heindsmann, J. G. Donaldson, and F. C. Lowell, Jr. **40:** 1280—1966

16.8 **Medical Diagnosis with Acoustics**

Abstracts

Identification of heart murmurs by spectrographic pattern matching. L. G. Kersta and M. L. Schwartz. **40:** 1282—1966

Patents

Transceiving ultrasonic impulses in medical diagnostics. Carl Hellmuth Hertz and Sven Olofsson. **40:** 1236—1966

Ultrasonic pulse-echo apparatus for internal exploration. Benson Carlin. **40:** 1585—1966

16.9 **Medical Use of Ultrasonics for Tissue Modification (Permanent and Temporary)**

Letters to the Editor

Effects of heat and ultrasound on Vx-2 carcinoma in bones of rabbits: a preliminary report. Lawrence E. Cerino, Eugene Ackerman, and Joseph M. Janes. **40:** 916—1966